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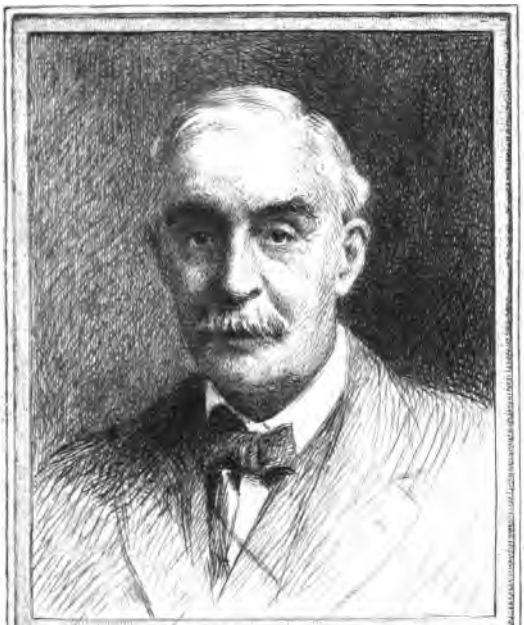
THOUGHTS ON SCIENCE, THEOLOGY, AND ETHICS.

JOHN WILSON, M.A.



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THOUGHTS ON SCIENCE, THEOLOGY,

AND ETHICS.

THOUGHTS

ON

SCIENCE, THEOLOGY,

AND

ETHICS.

BY

JOHN WILSON, M.A.,

TRINITY COLLEGE, DUBLIN.

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PREFACE.

THE object of this little book is to give a correct sketch of the main lines of modern thought in small compass and in language simple enough to be easily understood. It is intended specially for those who, taking an interest in the subject of it, have not leisure to study the large and learned books in which they are treated. From this it will be apparent that no claim is made to originality of thought. The writer will be quite satisfied if his readers are led to take greater interest in the grand principles of Science, Theology, and Ethics, and are aided in forming clearer conceptions of them. The following words are defined in the sense intended by the writer, although they may be used by others in senses different from his. It will be noticed that the word *Science* is used in a much more

extended sense than what is generally attached to it; while the word *Theology* is used in a more restricted sense than what is often understood to be within its scope.

GOD. The Omnipresent Power which exists behind the facts of the universe.

Of this Power Science asserts the existence to be a necessary supposition, but the nature to be to us unknowable and inconceivable. Theology, on the other hand, asserts its nature to be known, and conceives it to be manlike.

THEOLOGY. The supposed knowledge as to God and what exists beyond the horizon of the verifiable.

SUBJECTIVE. Relating to our own states of consciousness—to self.

OBJECTIVE. Relating to what exists outside of our own states of consciousness—to the not-self.

FACT. Anything capable of being a subject of thought, or of which we can think.

PART I.

CHAPTER I.

WHAT IS SCIENCE?

A PIECE of common charcoal and a diamond are in one sense the same. They are composed of the same material, viz., carbon. Yet by the different arrangement of their particles they are very different in quality and value. So likewise are science and common knowledge composed of the same material, viz., facts. Common knowledge, however, consists of facts, unorganized and unconnected; science, of facts organized —connected by the bands of law. It is this organization which gives them scientific value. A collection of separate, unconnected facts resembles the raw material of manufactories. Lumps of iron are of little value in an unorganized state, but they become invaluable in the form of machinery, that is when brought into a state of organization. An army and a mob are both collections of individuals, but one is organized, the other is not. A confused, unarranged heap of books differs

from a library. So common knowledge differs from science. Science makes use of separate facts as her raw material; they serve her only as means to an end: her object is to arrange them under the laws of nature by which they are governed. This, then, is her ultimate goal.

Having been told that the distinguishing characteristic of science is the discovery of the laws of nature, an inquirer would naturally ask, "What is a law of nature."

Here again we must note the difference between the popular meaning of a word and its scientific meaning. The word *law*, in popular language, means "the command of a superior to an inferior." Law is the expression of the will of a stronger to a weaker, and is always associated with the idea of personality. The scientific meaning of the word *law* is entirely different. The idea of personality is altogether absent. Law, in a scientific sense, means simply *order*.

A law of nature is a formula which expresses correctly an invariable order in which facts occur. For example, Newton's formula, "Every particle of matter attracts every other particle of matter with a force proportional directly to the masses and indirectly to the square of the distance," is a law of nature; that is, it expresses correctly the invariable order in which certain facts always occur. A law of nature is simply a statement that certain facts occur, and always will occur, in a certain order.

The idea of personality is entirely absent. There are but two things implied: (1) An invariable order among facts; (2) a correct statement of that order. If one single exception can be found to the statement, it cannot be a law of nature in the scientific sense. Science assumes that the universe is a cosmos; that all is order, invariable and eternal; that chaos is nowhere to be found in time or space; that every fact, mental and material, exists or occurs in accordance with the invariable law of cause and effect, the same cause being invariably followed by the same effect. In a scientific sense, therefore, a law of nature cannot be broken; it would be a contradiction in terms. If there is invariable order, and if the formula correctly expresses this order, it follows that no exception can be found.

We have said that science *assumes* that the universe is a cosmos—a region where invariable order reigns. Some may be astonished at the idea of science being founded on an assumption. "We have always heard," they may say, "that the great characteristic of science is, that she demands convincing evidence of everything before admitting it to be true."

Here it will be necessary to explain the nature of truth. Truth is divisible into two kinds: (1) *Subjective*: (2) *Objective*.

By the first is meant knowledge of our own states of consciousness. In strict language, these are all we

can correctly say we *know*. Of the existence of a feeling or an idea we can have no doubt; our knowledge is absolute. In fact in this case knowledge and existence are one and the same. But of everything outside of self, or objective, we can have only *inferential* knowledge. In scientific language, we do not *know* that anything outside of ourselves exists; we infer it. All we know or can know of matter is the mode in which it affects our states of consciousness. Its existence is a matter of inference. We infer or assume that certain states of our consciousness are caused by something external to self. That supposed something is what we call matter. Of it we can *know* nothing, except as it affects us. For example, we see a rose to be red, we smell it and perceive it to be fragrant, we touch it and feel it to be soft. Now all we *know* is that we had the states of consciousness called redness, fragrance, and softness. That a something external to self exists which caused these states of consciousness, we do not *know*, but infer or assume. Practically, an inference, if confirmed sufficiently by experience, becomes as certain as absolute knowledge. No one practically doubts of the existence of things outside of self. But it is most important to recognize the distinction between absolute knowledge and inference, or, in other words, between subjective and objective truth.

Of the first it is impossible to doubt; the second being in its nature a matter of inference, varies according to

the amount of evidence from a mere guess to a practical certainty. It is true, therefore, that science is based on an assumption—but on an assumption verified by experience to such an extent that to those capable of understanding it, no practical doubt remains. Still, in correct language, it is not an absolute certainty that invariable order exists throughout the universe. For us to know that absolutely, it would be necessary for us to be omniscient both in time and space. Grant that in all our experience the same cause has invariably produced the same effect, it remains possible that outside of our experience, both in time and in space, it may not be so. All that science asserts is that as a matter of fact no single instance has been verified where uniformity in the order of cause and effect has been interrupted. Every manifestation of force exhibited in a certain way under certain conditions, science assumes, will invariably manifest itself in the same way so long as the conditions remain the same. To those who feel unable to assent to this assumption, science has nothing to say. If any spot in the universe can be pointed out where chaos reigns, science would acknowledge that there she could not enter; but having once laid the foundation-stone of invariable order, science goes on with her work of discovering the laws of nature.

The scientific test by which every theory is tried before it is admitted and acknowledged to be a law of nature, is

experience. Not until a theory is found to give the power of prophecy is it allowed to be a law of nature; that is to say, not until given certain conditions, we can with certainty foretell the results. Is there, then, no such thing as chance? The answer is, "Objectively, No; subjectively, Yes."

Chance is a word which expresses a state of our mind, not a quality in an objective fact. A few examples will make this plain. A traveller about to cross an unexplored range of mountains would say that it was a "chance" whether on the other side there was an impassable precipice or an inclined plane. Having by experience found out the truth, all chance would vanish. This change did not take place in the objective fact, the shape of the mountain, but in the state of mind of the traveller. The word "chance" referred exclusively to the subjective fact that the traveller was in doubt in consequence of his ignorance, and, with the disappearance of this, chance vanished, and certainty took its place. Again, on a die being shaken in an opaque box and thrown on the table, it would be said that it was a chance what number fell uppermost. On the other hand, if the die had been placed in a transparent glass box, and the movement had been so slow that the eye followed every turn of the die until it rested on the table, the spectator would have said that the number turned up was a certainty, not a chance. This substitution of

the word *certainty* for the word *chance* was evidently caused by the change in the mind from ignorance to knowledge, and not by anything in the objective fact.

When we come to speak of "the methods of science," it will be seen that the not distinguishing the objective from the subjective in the meaning of words, is a prolific source of error. It would save a great deal of confusion of thought if it was always borne in mind that such words as chance, necessity, &c., refer to the state of our *mind*, not to the *objective facts*.

In discovering the order of nature, science is said to "explain things." Now, what does science undertake when she tries to *explain* a thing?

To explain a thing is to bring it into causal connection with other things, with the nature of which we are already familiar. By the nature of anything, we mean the manner in which it behaves in manifesting force. When a manifestation of force takes place, either apparently uncaused or from causes unconnected with anything the nature of which is familiar to us, it startles us: no one knows how it may behave. An unexplained fact resembles a loose, untrained horse, kicking, plunging, and galloping about in a field in the most erratic and incalculable ways. The animal is a cause of terror and of a desire to get him under control, trained and harnessed. So it is with an unexplained fact, apparently unbound by the chain of cause and effect, it

creates uneasiness, because its ways of acting are incalculable, and we desire to get it under control,—brought from the unfenced field of ignorance into the highway of knowledge. For example, an explosion of a boiler takes place and demands an *explanation*. This is given thus: We are already familiar with the nature of heat in expanding water at and above ordinary temperatures; we know that the force with which the particles of water separate from each other increases with every increase of temperature; we know that the particles of the iron boiler cling together with a certain force; we know that, if the force of cohesion between the particles of the iron is less than the force of repulsion between the particles of the water, the particles of iron must be torn asunder. Now if we know that the temperature of the fire rose to such a degree that the particles of water were repelled by one another with a force greater than the force of cohesion by which the particles of iron clung to one another, we know also that the latter were consequently compelled to separate.

Here, then, we have the fact of the explosion shown to be in causal connection with other facts already familiar to us. The explosion is now scientifically *explained* by being thus brought into subjection to law and order. When this is done the work of science is finished. The fact is proved to be in accordance with the assumption of science, viz., that the universe is a

cosmos — a field over which reigns eternal invariable order. This order it is the business of science to discover, and to express in formulas (—commonly called "laws of nature.") When this knowledge has been gained, and when facts can be thus explained, the work of science is finished.

Theology as well as science is a "theory of things," and in primitive times had precedence of science. Theology might be called "infantile science." At the first dawn of intelligence theology was the first attempt to explain things, and, like science, was founded on an assumption—the only possible one under the conditions, viz., that the nature of man was double; that there was a visible person and an invisible.

Many things suggested this idea. Dreams, echoes, shadows, reflections—all these suggested and supported the theory that man was duplicate; that within the visible man there was an invisible *ghost*. By means of the assumed existence of this ghost the primitive mind explained things. All action was similar in nature to human action. Everything had within it an invisible ghost as the cause of all its action. This stage of theology is called fetishism. Every object is a god, because containing an invisible ghost. When man becomes sufficiently social as to live in a society the organization of which is controlled by a single chief, the idea of one having authority and power over many be-

comes familiar to him. The chief when alive had the power to benefit or injure, and this power remained with his invisible ghost after his death. From this followed the worship of local and many gods—or polytheism. As societies increased in size from tribes to great nations, and examples were thereby furnished of a single king ruling over the whole of the known earth, the worship of the ghost of such king naturally led to the idea of monotheism, or the worship of one manlike god, "King of kings and Lord of lords."

From this theory it rationally followed that, if things were to be regulated for our benefit, it must be through this god or manlike ghost. The ghost of a dead chief was feared, flattered, and bribed in the same manner as he had been when alive. If things were to be regulated for the benefit of the living, this god must be propitiated,—kept in a pacific and friendly state of mind, every evil being the result of his anger. As customs differ in different countries, so the manner of gaining the favour of God differs in different systems of theology; but in principle all theologies are similar. An African does not flatter in the same manner as a European; his song of praise, accompanied by the monotonous noise of a tom-tom, differs, it is true, from a European anthem and organ music; but that is only a matter of detail. The character of the gods in the different theologies varies as the character of the people

varies, but all theologies agree in this—that God is a *manlike* Ghost. That is their fundamental assumption, and, grant that assumption, the conclusions drawn are rational enough. Civilized man wonders and smiles at the absurdity of the theological dogmas of the savage, but in reality they are quite as rational as his own.

The great question, then, is this, "Is the fundamental assumption of theology true? Have we any evidence that God is a manlike Being?"

We have seen that science as well as theology is based on an assumption. Science, however, appeals to facts to verify it. This, theology cannot do. From the nature of the case experience is excluded. All our experience is confined to facts as they affect our states of consciousness. What lies behind these states is and must remain a mere assumption only. That there exists in every man a ghost distinct from man as recognizable by our faculties, is a theory. So is the assumption that the cause of all things is a manlike ghost describable in terms of human consciousness, such as wise, good, jealous, angry. But such theories are unverifiable.

Theologians try to sustain their theories in two ways: (1) by an appeal to historical evidence of miracles and of supernatural means of gaining knowledge of an unseen universe unknowable by our natural faculties; (2) by an appeal to facts in nature as demonstrating the existence of human attributes in God,—such attributes as wisdom, goodness, and anger.

The first it would be impossible for us to consider at any length. It is sufficient to say that science, by historical criticism, has completely destroyed the authority which in pre-scientific times was attached to tradition written and unwritten. Books which were supposed to have been written in some supernatural manner by the manlike God communicating knowledge to the writers are now shown to be most erroneous, so far as they refer to verifiable facts, and therefore to bear the marks of a human origin. This is now acknowledged by theologians themselves. The late Archbishop of Canterbury said on a recent occasion, "How many of the supposed difficulties as to numbers and national or family genealogies, and even as to geographical, chronological, or physiological accuracy, may be allowed quietly to flow away without our being able to solve them, if we bear this acknowledged fact (viz., that there is a human element in the Bible) distinctly in mind! When laborious ingenuity has exerted itself to collect a whole store of such difficulties, is it wrong to answer, 'Suppose what you say is true, what on earth does it signify?'" In pre-scientific days it was thought to be sufficient to show that a doctrine was sustained by any part of the sacred book. Now it is acknowledged "that there is a human element" in it; so the fact that a statement is in the Bible or Koran or other sacred book, does not necessarily give the statement supernatural authority.

We are not told by what means this "human element" can be distinguished from the superhuman. If of the statements in the book many that can be tested are found to be inaccurate, the inference is that the ones which cannot, may be inaccurate too. In theological works many questions that should be satisfactorily answered are seldom even alluded to; as, for instance, "What was the nature of the process by which a writer was inspired?" "If it was accompanied by signs capable of being witnessed by others, what were those signs, and where is the testimony of the witnesses?" "If inspiration was an internal process, by what means did the writer distinguish the inspired from the uninspired thoughts?" "If the writer's assertion is the only evidence of his inspiration, how do we know that both his mental and moral nature were such that we may rely upon his evidence?" The fact is that there does not exist any evidence by which these questions can be answered. For scarcely any of the so-called sacred books have we any reliable evidence at all as to the time in which they were written, or as to their authors. In this respect they differ in nothing from other ancient books such as Homer. Yet, on the authority of these unknown writers, we are called upon to believe that a multitude of events took place,—events so improbable and so contradictory to all experience as to be absolutely incredible even on evidence inconceivably stronger than

any that has ever been produced. Historical evidence, therefore, falls infinitely short of that on which an intelligent person could believe in supernatural events.

Instead of the fact that miracles are related in ancient books being evidence that such events took place, it would be almost a miracle if they were not related in such books. Miracles are happening now every day, always have happened, and will continue to happen among people ignorant of scientific principles; but they are subjective, not objective events. Historical support for the assumption of supernatural knowledge, therefore, may be put on one side as worthless.

The second support relied upon as proving that God is manlike is of a different kind: theologians appeal to our own experience of natural events as evidence of the existence of a manlike God. It is said the mechanism of plants and animals exhibits *design*. Means are beautifully adapted to ends. The arrangements are similar to what the intelligence of man is capable of inventing. The quantity of the intelligence is larger, but the quality is the same. The inference, then, is justified—God, the cause of all things, has manlike intelligence.

This reasoning is plausible and, to minds in some states, unanswerable. We have already seen that to primitive man the ghost-theory reasoning was similarly plausible. When he dreamt of the chase one part

of him was in his hut, the second was miles away hunting. The sound of the echo was similar to what he himself produced; it must therefore be produced by a being (invisible, indeed, but) similar to himself. We can see the mistake, but primitive man, ignorant of such things as physical cause (cerebration, undulation of the air, reflection, &c.), formed the best theory possible to him under the circumstances.

So is the argument from design a plausible one, and to minds in some conditions conclusive; but as the principles of science attain influence its inconclusiveness is revealed. Moreover, if the conclusion was justifiable that wherever we perceived facts which appear to us similar to those that might be due to an intelligent man, they must have been produced by a being similar to a wise man, it would be equally justifiable when we see facts such as might be the work of a fool, to conclude that some idiotic being was their cause. To make a machine adapted to serve a purpose, and then wantonly destroy it without allowing it to fulfil its functions, would be conduct such as we could expect only from a fool. Now in nature we see the immense majority of the seeds of plants produced but to perish, and the immense majority of the young of animals formed but to die. This prodigality of waste in nature is most remarkable. But would we be justified in thinking that this waste was produced by a manlike idiot? Many

facts in nature are just as suggestive of foolishness as others are of wisdom: such are organs useless to the creatures in which they exist; as teeth in the jaw of the whale. Before the principles of science were understood, the argument from the adaptation of means to ends was plausible, but since science has brought forward the doctrine of evolution by the survival of the fittest, even its plausibility is gone.

The argument for the existence of the human attribute of goodness in God is founded on the same imperfect reasoning as that we have just considered. Facts producing results, such as a good man might produce, are cited as proofs of the *goodness* of God; while facts such as only the most cruel and wicked would or could be guilty of, are either passed over unnoticed, or put aside labelled "mysteries." A healthy and beautiful child is taken as a proof of God's goodness; but nothing is said of infants born in a state of disease or deformity, and destined to a short and miserable existence. What, again, is to be said of creatures so formed that life to them is possible only by the sickness, pain, and death of other living creatures?

If facts similar to what human goodness would produce are proofs of God having the attribute of human goodness, it follows that facts similar to what human cruelty and wickedness would produce—and they are just as numerous—are equally proofs of God having the

attributes of human cruelty and wickedness. But the truth is, neither one nor the other is any proof at all that the nature of God is manlike.

It is said in the Hebrew Scriptures, "God made man in his own image." Turn the statement upside down, and it becomes true: "Man makes God in his own image." And whether the representation consists of the clay figure made by an African negro, or the mental image constructed by civilized man, it is equally a vain and foolish idol. The most ignorant savage and the Archbishop of Canterbury are equally unable to form any true conception of the nature of God.

Let us suppose one of those small shell-fish in the slime at the bottom of the ocean trying to form a conception of the forms of existence on the surface of the earth. It knows and can know nothing of light or colour, of air or sound. Its experience has been confined to a few feet of mud two thousand fathoms below the surface, where there must be utter darkness and eternal silence. All the forms of existence known to it have been creatures more or less like itself. Imagine such a creature trying to form and express a conception of the forms of existence of the plants and animals as known to us!—such an attempt must be in vain. Then suppose further this tiny creature trying to conceive the idea of God, the cause of all *it* knew, and to describe him as an invisible shell-fish, with a shell enormously

large and tentacles infinitely long; in fact, a magnified image of itself. The folly of this attempt to enter what was to the shell-fish the region of the unknowable would be very plain to us. But let us suppose still further that this little creature not only formed this conception of God, but felt so confident of its virtues as a correct one that it assured the other little shell-fish that any of them that did not *thus* think of the deity would "without doubt perish everlastingly." The ludicrous presumption of the creature would amuse a child.

Now there is really no essential difference between the folly (thus imagined) of this tiny creature and that of the theologian. Astronomers, trying to give us a faint idea of the distance of the fixed stars, tell us that if we had set off to travel to one of them, and had got one hundred and eighty millions of miles on our way, we might consider that we had not yet begun our journey, one hundred and eighty millions of miles being as nothing compared with the entire distance of the star. So may we say that though the folly of the little shell-fish at the bottom of the ocean trying to conceive and express ideas of God in terms of its own experience is actually greater than that of man, yet the difference between them may be disregarded, that difference being as nothing compared with their remoteness from their common object.

The following extract from an ancient Indian writing

shows that the folly of making images of God had been discovered even in very early times: "How can any one teach concerning Brahma (God)? He is neither the known nor the unknown. That which cannot be expressed by words, but through which all expression comes, this I know to be God. That which cannot be thought by the mind, but by which all thinking comes, this I know is God. That which cannot be seen by the eye, but by which the eye sees, is God. If then thou thinkest thou canst know it, then in truth thou knowest very little. To whom it is unknown, he knows it. One cannot attain to it through the word, through the mind, or through the eye. It is reached only by him who says, 'It is, it is.'"

Atheism and theology are both guilty of the error of assuming a knowledge of the unknowable. The atheist, by asserting that there is no God, pretends to knowledge of what lies beyond the horizon of human thought. He asserts that outside the range of *his* faculties nothing exists. As well might the little shellfish at the bottom of the ocean deny the existence of anything beyond the range of *its* faculties. The theologian, again, commits the very same mistake, not by expressing belief in an existence beyond our horizon, but by assuming a capability of knowing the *nature* of such existence, and by describing it as manlike.

Science, on the other hand, while admitting that what

we know of mind and matter leads us to believe that behind the infinite and endless forms of facts, mental and material, there exists a source of power, the cause of all, asserts that, from the limitation of our faculties, a knowledge of the nature of this causal power is and must be impossible to us. To try to conceive or express it in terms of either matter or mind is and must be futile. It is a mistake natural to mind in its childhood, a mistake, however, often carried on by its own *vis inertia*, so to speak, into manhood; thus men of great intellect, and with minds imbued with the principles of science, sometimes continue to imagine that they believe that God is manlike in his nature, and can be thought of as having the attributes of man.

Whether, then, we examine the argument from historical evidence or the argument from supposed design, as proving the manlike nature of God, the proof is found to fail. It is often said, "Grant that the evidence available is not fit to bear scientific tests, yet our own minds tell us that we must either think of God as manlike, and describe him in terms of human consciousness, or become practical atheists by ceasing to think of him at all." The only reply to this is, that any one who thus feels, *will* continue to assent to the assumption of theology *without any proof*. Such are those who, with splendid inconsistency, accept science and refuse to part with theology; who pray to God as

if they believed that everything would happen during the day just as he would at each moment personally determine, and then, prayer over, expect all things to happen in accordance with the law of cause and effect as revealed by science.

It is well, in one sense, in this age of transition from the principles of theology to the principles of science, that many minds are little, if at all, disturbed by their own inconsistency. The same person is able to think at one time as a theologian, and at another as a scientist, though the principles of the one are exactly the reverse of the other. This power of dividing the mind into separate compartments is a source of safety, just as it is for a ship to be built on the plan of water-tight sections. The idea of being in the dark, either mental or material, is to many minds terrifying. Any argument does to convince those who *wish* to be convinced; and those who are afraid of being in the dark wish to be convinced by theology. To such it is a great comfort to think that they know that the invisible Cause of all things is such a one as themselves; that they can talk to him, sing to him, please him by flattery and other means, and so get him to act for them as a friend —aye, even to have him bound by a covenant.

Theologians, when they accuse others of atheism, should not be understood as meaning that their opponents deny the *existence* of God. To a theologian an

atheist is any one who denies that we have reason to believe in the existence of the God the image of which has been drawn by that theologian. Suppose a blind man drew a picture of a cow, and a spectator said that he did not believe there ever was any animal at all like the picture—the blind man would not be justified in accusing him of "*acowism*," that is, of expressing disbelief in the existence of any cow. The pagans accused the primitive Christians of atheism because the latter denied the existence of Jupiter, Jupiter being the pagan picture of God. It must be acknowledged that this theological mistake is a natural one. The only deity a theologian knows is one corresponding to his *own* picture; wipe *that* out, and *to him* there ensues a complete void, and hence, naturally though erroneously, he accuses of atheism the man who has wiped the picture out.

We have now considered sufficiently the main arguments for the existence of a manlike God, and are forced to the conclusion that this assumption, the fundamental assumption of all theology, is unverifiable. It may be said, perhaps, "Grant that, strictly speaking, there is no *proof* of the manlike nature of God, still, surely the fact that almost the whole human race have held the belief, is a strong presumption that it is true." On the contrary, the presumption is that it is false. Girls, when very young, naturally and inevitably attribute to

their dolls the same states of consciousness that they experience themselves. A broken leg in the doll brings a copious flow of tears. But when older, and more experienced, girls abandon this belief, notwithstanding that all the younger girls of the race continue to hold it. The race itself, as a whole, is still in mental infancy; its assumption in regard to God is consequently no more worthy of belief than the assumption of the infant girl in regard to her doll.

It may be truly said we are all born theologians. Imagination is strong and active long before reason, and, while thus uncontrolled, builds many a structure which reason afterwards finds to be a castle in the air. The works of the imagination, while unchecked by verification, appear just as strong and substantial as if they were real (—witness dreams); but in the presence of reason these become "the baseless fabric of a vision." Into the territory behind facts (as they appear to us) reason cannot enter, and verification is impracticable; there imagination has the field to herself. The intellect of man can penetrate a certain distance, and no further. Beyond the scope of his faculties hangs a veil of absolute blackness of darkness. On this black veil Theology throws her images from the magic lantern of her imagination, and fancies that the light comes from beyond instead of from herself. All the beings inhabiting this region—God, angels, devils, and human souls—are

images of man. Like the pictures of the kaleidoscope, the combinations are new, but all are made up exclusively from the same original materials.

Theology is a "theory of things" based, as we have seen, upon an error natural and inevitable to the infancy of man—the error of trying to know what must remain unknowable, and thereby deceiving oneself, of not recognizing the difference between dreams and realities, of furnishing the invisible world with the facts of experience, of creating God after our own image.

We may now contrast science with theology. In two respects they are similar, in all others they are opposed. Science and theology are both "theories of things," and are both based upon assumptions.

The assumption of science is "that eternal, invariable order reigns over the whole universe; that no fact, mental or material, exists except as a link in an endless chain of cause and effect, the same antecedents being invariably followed by the same consequents."

Theology assumes that God is a being in nature similar to man; that invariable order does not exist; that miracles have happened, do still happen, and may happen at any time; that no fact exists except as a product of the will of the manlike God.

Science regards it as the proper object of inquiry—to ascertain, and to express in correct formulas, the order in which facts occur. These formulas, when found

by invariable experience to be correct, she calls "laws of nature." A broken law of nature is, from a scientific point of view, a contradiction in terms.

Theology asserts that the proper aim and object of all inquiry is to know what is the will of the manlike God; that this knowledge is to be found in books called collectively "Divine Revelation," written by men of old time, who were inspired in a miraculous manner, or in the word-of-mouth utterances of men of a certain class set apart to communicate it, and that all other knowledge is at best comparatively useless and, if opposed to this, detrimental. The breaking of God's laws by man is not only possible, but constant; and a large proportion of theological forms and ceremonies consists but of devices to propitiate God, with a view to escape the punishment which his anger thus caused would certainly bring. These forms and modes of propitiation, identical in principle with the means adopted by peoples to propitiate earthly rulers, include sacrifice, prayer, flattery, self-abasement and self-inflicted pain, such as fasting, injury to the body, wearing of filthy clothing, living away from friends—in fact, all forms of misery—all of them self-inflicted in this world to gain the favour of God in the next. And, granting that the nature of God is manlike, these theological customs are rational.

In the theologies of people in the same stage of intel-

lectual and moral development as the Hebrew Abraham, whose God was supposed to be compelled to come down from heaven to investigate by personal inquiry rumours of bad conduct which he had heard (Gen. xviii. 20, 21), there is no incongruity in the supposition of men being able to break God's laws as they had the power to break the laws of their earthly king. But when the attributes of omniscience and omnipotence came to be conceived, the idea of man breaking the laws of God became absurd. "No man can enter a strong man's house and spoil his goods unless he first bind the strong man." If two forces meet, the weaker cannot prevail. To suppose so is as much a contradiction in terms as it is to talk of a broken law of nature in the scientific sense. If God wills that man shall not do a certain act, and man says he will do it, and does it, it follows that man's will is stronger than God's will. This contradiction is veiled by the supposition, that although man can *for a time* overcome God, yet ultimately God's superior strength will be proved. Another explanatory supposition is that God has created in man a thing called "free will," which has been left unconditioned by any cause. Still another mode of treating the difficulty is to put it aside with the remark that the fact of man acting contrary to the will of God is a "deep mystery." "When crime is committed, if it was allowed that man could *not*

break a law of God, nor act contrary to his will, God would be made a direct participator in the crime, a supposition that would be blasphemy. Yet, on the other hand, it is a contradiction in terms to say that a creature could overcome his Almighty Creator. This is a great mystery, and as such it must be left."

In theology this resource for getting rid of a difficulty by labelling it a "mystery," and so putting it on one side, is a very necessary one. In science, when facts and theory do not agree, the theory is at once and without hesitation rejected. In theology this is impossible. The fundamental theory that God is man-like is contained in a miraculous revelation. Touch that with the hand of criticism, and theology ceases to exist. Hence the origin of the theological dogma that of all virtues faith is the greatest, and that of all sins doubt is the most fatal. "He that believeth and is baptized shall be saved; and he that believeth not shall be damned." Science says, "All I assume is, that facts exist, and will continue to exist, in an invariable order. My dogmas are to be accepted not absolutely, but always subject to verification by experience; and if any of them do not stand that test, they are at once to be discarded." Theology, on the other hand, deals with a subject in which verification is impossible—the nature of God not being a subject of experience.

The contrast between science and theology has been very tersely expressed by Dr. Magee, the present Bishop of Peterborough. "Science abhors finality in belief; but that is just what theologians like. Science discovers facts, but theology accepts revelation, and clings to creeds." Science, as the Bishop most truly says, could not accept "finality in belief," seeing that her dogmas rest entirely on the verification of experience. Theology, on the other hand, dealing as she does with things outside the range of verification, can accept this finality; and feeling instinctively that her feet rest upon the ground, not of reason, but of imagination, she naturally hates the idea of being liable at any moment to criticism and correction. Science is content to spend all her time in laboriously searching for facts—that is, for truth—within the horizon of the knowable. In the eyes of a theologian this is miserable work. While science is grubbing (as he thinks) in the earth—in the narrow field of experience—theology is soaring in the sky, in the boundless universe of existence, seeing what eye has never seen, hearing what ear has never heard, and learning what it is impossible for the unaided human mind to conceive. Here indeed in her natural element beyond the realms of experience theology does enjoy the freedom she desires: she is beyond the reach of criticism, and exempt from all necessity to change.

Seeing, then, that science and theology are the very opposites of each other, it must be a futile task to reconcile them. The one is the product of reason and experience, the other of imagination and feeling. Yet repeated failure does not seem to discourage the attempt. The explanation of this is simple. A person born, reared, and schooled under the influence of theology naturally clings to the creed of his mother. To pull up what has its roots deep in the feelings necessarily causes great pain. On the other hand, it is impossible to deny the triumphs of science. The evidence for her truths is overwhelming. What, then, in this age of transition, more natural than the wish to accept the teachings of science without giving up the dogmas of theology? They both profess to be true, and truth is single; there must therefore be only a *seeming* contradiction; let us find out the way of reconciliation. The task, like the discovery of perpetual motion, is a fascinating one, but it is equally hopeless. Science and theology are mutually opposed—the "discovery and acceptance of facts" is, from the nature of things, incompatible with the "accepting of revelation and clinging to a creed."

There is but one plan by which one and the same person may be both a scientist and a theologian, and that plan is to make a division of time and become each in turn. A certain time,—generally a very small fraction

of the whole, is told off to theology, and during it the person tries to talk, think, and act as a theologian. The remainder of the time is devoted to the service of science, and to acting in accordance with the facts she has discovered. The great Faraday himself, one of the most eminent scientists of the century, lived this twofold existence. During the day he thought and acted on the strictest principles of science, while in the evening he would talk and act as a member of the obscure theological sect called Sandemanians. Faraday during the day and Faraday in the evening were practically two distinct persons. But in this, Faraday only represents the vast majority of men. People go to church on Sunday, and there with grave and solemn faces "accept revelation," assenting to the dogmas and legends of an age when theology was in its prime and science an infant, and then for the rest of the week they think and act without hesitation, as if they had never heard of revelation, and had no faith in ancient legends. This inconsistency, if conscious, would be productive of great moral deterioration by lessening the love of truth; but as it is for the most part unconscious—people generally not really believing what they think they believe—this evil is much less than might be expected. The attempts at reconciliation by twisting and stretching revealed doctrines to make them fit perforce with the facts dis-

covered by science is much more deteriorating morally than unconscious inconsistency. It is really melancholy to see attempts made to stretch twenty-four hours into millions of years; to transmute the legends of Noah and of Jonah into history; and to try to force the word "creation" to mean its opposite, "evolution." These and such-like endeavours to reconcile modern science with ancient theology are worse than futile; they have a distinct tendency to destroy the greatest of all virtues—*truthfulness*.

Why not let the wheat and the tares grow together until the harvest? The law of the survival of the fittest will be the true reconciler. Theology and science are both "theories of things." The one the natural product of imagination, the other of reason. The conditions in which theology germinates and grows luxuriantly are absolutely stifling to science. Where science thrives, theology dwindles away. When science first began to occupy the ground where theology had hitherto undisputed possession, an angry and determined struggle could not be avoided; but that period in this country is nearly ended. They both exist, but the one must increase and the other decrease. The fears, however, of those who imagine that this change may come with a suddenness which might be destructive are not well founded. This change, like all evolutionary changes, must be slow. Such changes as the Protestant

Reformation and the French Revolution are sudden only in a subjective sense; that is to say, the suddenness they appeared to have was due solely to our ignorance of the long chain of causal facts which preceded them, and of the length of time they were gathering strength. Science and theology will long co-exist, though they be antagonistic. Those who recognize in science the great means of human progress naturally feel impatient at the influence of her antagonist and her power to retard. But we must be satisfied in knowing that just as surely as each individual, when a child, spoke as a child, thought as a child, and then as he became a man gradually threw away childish things, so surely will the race gradually take more and more interest in science and less and less in theology.

Even in the present day we are struck with the progress of the change. Faith in the revealed pictures of the unseen, it is true, remains; but if we look back a few generations it is manifest that our faith at its strongest is but weak compared with the faith of our fathers. Creeds are still "clung to," but the clasp is not so firm. The nature of science is better understood now than it was; though still in the education of the young in school and college the time given to the teaching of real knowledge is but too small compared with that devoted to the legends of theology,

ancient and modern. The value of real knowledge, however, is surely though slowly being recognized; though the speed with which this is taking place is not proportional either to the sanguine hopes of the scientist or the fears of the theologian. We may now pass on to consider the next question.

CHAPTER II.

WHAT IS THE USE OF SCIENCE?

THE answer which many would give has been expressed by the poet thus :—

> "What is truth or knowledge but a kind
> Of wantonness and luxury of the mind;
> A greediness and gluttony of the brain,
> That longs to eat forbidden fruit again;
> And grows more desperate like the worst diseases
> Upon the nobler part, the mind it seizes?"

Again, the writer of the book of Ecclesiastes says, "In much wisdom is much grief, and he that increaseth knowledge increaseth sorrow."

There is a great deal of truth in these opinions if the word "knowledge" is used in the *popular* sense. But we have seen (page 7) that there is a difference between "common knowledge" and "science." Common knowledge consists of unconnected and unrelated facts only; whereas science consists not only of facts, but of facts organized on the basis of their connections and rela-

tions, and not only of these, but of laws—laws of nature as they are called—the product of such organization.

The question, then, to which we have to seek an answer resolves itself ultimately into this: What is the use of a knowledge of the laws of nature? By the word "use" is meant the power of satisfying some want of our nature. A thing is of use so far as it is the *means* of satisfying some desire. How, then, does science give us the power of satisfying our desires?

Let us first take a general view of man's position on the earth. In personal strength man is inferior to many other animals; while compared with the material forces of nature which surround him, his strength is as nothing. Judged, indeed, by what he accomplishes directly by his own strength, man is contemptible. Yet judged, on the other hand, by what he accomplishes through the use of means, man is the most powerful, and incomparably the most marvellous, creature in the universe as known to us. The description given of him by the poet is no exaggeration: "What a piece of work is man! how noble in reason! how infinite in faculties! in form and moving how express and admirable! in action how like an angel! in apprehension how like a God! the beauty of the world, the paragon of animals!" Of infinitesimal force from one point of view, he is from another a creature "infinite in faculties," towering in strength beyond others

towards infinite power. He can ascend above the clouds, he can descend into the bowels of the earth and to the bottom of the sea. He can make his voice heard for hundreds of miles, and with the speed of lightning his thoughts known all round the globe. He is not to be stopped in his course either by the highest mountains or by the deepest oceans. He forces a way through the solid rock, and along this way and across the storm-tossed waters he can pass, carrying with him thousands of tons—and that with a speed like that of the swiftest of his fellow-creatures. He has increased his food a hundred-fold, turning one grain of corn into a hundred; he can replace a desert by a garden. Such and so vast is the physical power of man. The vastness of his power over mind, again, is shown by the influence that a single mind can exercise over multitudes of others. Founders of empires and of religions move and control the thoughts and feelings of millions. The orator can excite to fury the passions of vast audiences or soothe them into calm. The writer, again, by his books, in which are stored up the thought and feeling of his individual mind, can sway the lives of myriads for generations to come.

Here, then, we have a paradox. How can deeds so mighty be achieved by a creature so puny? It is by commanding other forces than his own. The personal

capability of man is confined within a narrow boundary. The multitudinous effects produced by him in mind and matter are the result of the exercise of one single personal power, viz., the power of *transfer*. That is to say, man can transfer matter from one position to another by muscular power, and transfer ideas from his own mind to the minds of others by speech or signs; but when this operation of transfer is over, man's direct personal power is exhausted. By the exercise, however, of this power of transfer it is possible for him to call forth and command all the mighty, inexhaustible forces of nature.

This single power of transfer is like the wand of the magician—insignificant in itself, yet by various motions capable of calling forth tremendous manifestations of force. It is strange—indeed at first incredible—that man's direct and personal share in all the mighty and marvellous work done by him is confined to this one operation of transfer, but analysis verifies it in every instance.

Let us take a few examples. Rocks are riven and hills laid low by the force of explosives. When examined, the process of the chemist by which this mighty force is evoked, consists of a series of transfers—particles of sulphur, charcoal, and saltpetre are by *transfer* placed in certain positions, forming the substance called gunpowder; next, a particle of matter of a certain

temperature is *transferred* to the gunpowder, and with this latter transfer man's share in the work is exhausted; the natural force of the explosive now bursts forth, not created, but only evoked by man. Again, a steamship carrying ten thousand tons at a speed of twenty miles an hour over a stormy ocean is a mighty manifestation of force. What direct personal share in it has man? From the moment the metal was dug from the mine, and the wood cut in the forest, until the construction of the ship and her machinery was complete, the personal share of man consisted solely in the transfer of matter. Again, in causing the engines to act with the power of ten thousand horses, he transferred coal and water into certain relative positions; transferred ignited matter to the coal, transferred a lever from one position to another, thereby allowing the steam to rush into the cylinders, and that huge ship is driven against wind and wave, not by man's power, but by the forces of nature. Again, from the time the farmer transfers his seed from his barns to the ground, until the harvest of a hundred-fold is brought home, his personal part consists exclusively of transferring seed, manure, and earth into certain relative positions; the marvellous work of growth is done by the forces of nature. In the mental world, again, we know that the direct personal action of mind on mind is confined to transfer. Ideas and feelings can be transferred

by signs and sounds, but there ends the direct personal power of one mind on others. The after effects are the results of the natural working of the recipient mind under the influence of the transferred ideas or feelings. No preacher, teacher, or orator can directly compel the mind of another to think or feel in a certain manner. They, like farmers, can sow the seed; what the harvest may be, they have no power to influence by *direct* interference.

We are now in a position to see the use of science. Science discovers the order of facts—the laws of nature. With this knowledge we gain the gift of prophecy, the order of nature being invariable. The forces of nature are manifested under certain conditions, and, under those conditions, always in the same manner. Science, by discovering these conditions, places it in the power of man to command the forces of nature, to call them into activity at any time and set them to work to fulfil his desires. All man has to do is to bring about the conditions, placing things by transfer in certain relative positions, and the forces of nature leap into activity to do his work. Science thus gives to man, in relation to these forces, the position of a monarch. A monarch, as a man, has no more personal power than any other man; his power as a monarch is his ability to bring to his aid his mighty hosts—to command his servants "to do this and they

do it." Exactly similar is the sovereignty with which science has invested man: she has subjected to his service the forces of nature—converting them, it may be, from enemies into friends, and so has rendered him not only the most powerful of living creatures, but the veritable master of the world.

The forces of nature are practically infinite both in quantity and quality; no one, therefore, can place a limit to the gifts of science in the future. If we want to measure the benefit of science in the past, we have only to compare the capabilities of civilized with savage man. The difference between the capabilities of the Andamanese, the Bosjesmans, the Fuegians, and Englishmen, Frenchmen, or Germans, is the measure of what science has done for man. Compare the capability of a canoe with an Atlantic steamship lit with the electric light. These are posts marking the distance travelled on the road of evolution entirely by the means of science. It is by the discovery of a law of nature—the law that wood will float on water, and by faith in its always doing so, that the savage can pass across his river. The Atlantic steamship, also, is the product of the discovery of the laws of nature and faith in their invariability. But the discovery of the laws of nature and faith in their invariability is science. Just in proportion as man becomes scientific does he advance in power and capability. The rapidity of this advance is greatly increased when man

becomes *conscious* of the source of his strength, recognizing intelligently what he acted on practically, indeed, but unintelligently before, viz., the fact that the universe is a cosmos, not a chaos—that invariable order everywhere exists, could we but perceive it; and that almost all our power is derived from our knowledge of it, and faith in its stability.

The following parable may illustrate the use of science. A traveller who was compelled to pass through a strange, unknown country sought some information of its nature and the character of its inhabitants. He was fortunate enough to meet a friend who told him, "The country you have to pass through is one in which you may enjoy yourself very much; on the other hand, you may find it a most dangerous and disagreeable place. If you know the roads to take and how to approach the inhabitants, you may become a king among them. By keeping on the roads marked out as safe you will escape all accidents, and by treating the inhabitants in certain ways they will not only not harm you, but become your most willing servants, working for you night and day; and as they are infinitely stronger than you, it is difficult to say what you may or may not be able to do with their help. Your enjoyment during your stay will depend upon the number of introductions you have to the inhabitants, and on your acting exactly as I am about to direct. I will give you cards of introduction.

Each card has a formula written upon it, describing how *you* are to behave and how the inhabitant to whom it is addressed will respond. The inhabitants have a peculiarity which makes these cards of great value. They are perfect Tories—so conservative in all their ways, that from time immemorial not one of them has ever once been known to act except in strict accordance with the formula on the card of introduction. Again, there is no danger of these cards getting out of date, by giving you information true at one time, but true no longer owing to change in the nature and manner of the people: neither the people nor the formulas ever change. I have a large collection of these cards, which I have accumulated during a number of years. For a long time very few knew there were such things as these formulas. Travellers depended upon different modes of gaining the favour of a supposed king, in nature similar to themselves, who lived in some undiscovered place. This king was supposed to make all the inhabitants act in accordance with his will, and therefore the only way of getting anything done was to get into his favour. So long as people were under this impression they did not come to me for my cards and formulas. Latterly, however, the number of people who have been applying to me has greatly increased. The reason of this is the success of my plan proved by experience. In response to the increased demand, I am

every day engaged writing out the formulas on cards of introduction to new people." The traveller asked this friend how he got the information which enabled him to write out the cards? His reply was, "I get all my knowledge by worshipping and loving with all my heart and soul a certain lady called 'Truth.' I follow her everywhere, and try never to lose sight of her. Seeing my devotion to her is so constant, she every now and again hands me another card of introduction with a formula written upon it. This remains a treasure for ever."

It is scarcely necessary to add the explanation. Man is the traveller bound to pass during his life through a strange country. The inhabitants are the Forces of Nature; and the formulas written on the cards of introduction are "The Laws of Nature;" the friend who supplies these cards is Science. The use of science is to enable us during our passage through life, on the one hand, to escape hurtful collision with the forces of nature which surround us; and, on the other hand, to gain their aid. As we may see from savage life, man, dependent upon his own personal powers, is a miserable creature. Every step he has risen from that low estate to the level of Newton, Spencer, Darwin, Watt, or Faraday, he owes to the aid of the forces of nature. For that aid and addition to his powers he is indebted to his knowledge and faith—knowledge of the unvarying order of facts, and faith in its persistence.

For long ages this knowledge and faith were exercised, so to speak, unconsciously. It is only in very recent times that man has become conscious of the fact that the universe is a cosmos, that in his knowledge of this universal order, and in his faith in its eternal stability, lies the only means of his advance from lower to higher on the road of evolution.

This knowledge and this faith is what we call Science. It is she who has bestowed upon our race all the benefits by which man has become "the paragon of animals." It is she who has placed in our hands the chain of cause and effect by which, as with a bridle, we guide the powers of nature for our use, or save ourselves from injury by their action. Electricity, which under the form of lightning is, in the absence of science, a source of terror and death, becomes in her presence not only perfectly harmless, but a gentle Ariel engaged in carrying our messages round the earth.

"Lo! the world is rich in blessings;
Earth and ocean, flame and wind,
Have unnumbered secrets still,
To be ransacked when you will,
For the service of mankind.
Science is a child as yet,
But her power and scope shall grow,
And her triumphs in the future
Shall diminish toil and woe,
Shall extend the bounds of pleasure,
With an ever widening ken,
And of dens and wildernesses
Make the happy homes of men."

Having explained how science is of use to man, we have now to consider the question, "What is the use of Theology." In considering the nature of science and theology, we came to the conclusion that as "theories of things" they are the opposites of each other. The one is the product of reason and experience, the other of imagination and emotion. The one employs herself in "discovering facts," the other in "accepting revelations and clinging to creeds." The one confines herself entirely within the bounds of the knowable and the verifiable, the other lives beyond that horizon, guessing at what "eye has not seen nor ear heard," and what to the mind of man is inconceivable. This being so, it would appear that there could be only one reply to the question, "What is the use of theology," viz., "None at all."

Directly—that is, as regards the performing of what she intends and what she believes herself capable of—theology is not only useless, but pernicious: by her representations leading man astray, and causing him to waste his time and energies in the pursuit of a phantom. Indirectly, however, she is of use. A squirrel turning a barrel cage in the hope of getting out is engaged in a useless way, if we consider his chance of succeeding in his direct object of getting out; but indirectly his efforts are of some use, affording, as they do, amusement to us, and healthy exercise to himself.

A theologian in a similar way is engaged in the task of finding a passage by which he may get from the knowable to the unknowable. So far his work is and must be useless. But in some indirect ways theology is of use, otherwise it would not continue to exist; that is to say, it satisfies some desires, though not the one principally intended.

What are some of the desires of man satisfied by theology? There seems to be, from the dawn of intelligence in man, a desire for a "theory of things." If there are any people who have never felt any craving for an explanation—of some sort—of the facts of experience they are the very lowest and most brutal. Theology is universally the first attempt to satisfy this craving. The existence of invisible manlike nature as the cause of facts is the guess which is naturally first made and which first serves as an explanation. The number of different "revelations accepted and creeds clung to" by different people is great, but the central core of all is, as we have seen, the manlike nature of God. Now there is no doubt that comfort is derived from this idea. It is pleasing to think that the reins of the universe are in the hands of such an one as ourselves. Again, theology allays the dread that generally arises from the feeling of being in the dark—though no doubt she creates much of the terror she gets the credit of allaying.

Man being now in course of transition from the solitary, selfish, and savage state to the social, sympathetic, and civilized, carries in his nature the qualities suitable to both states. The theological image of God being a reflection or copy of man, partakes accordingly of this his dual nature, and the terror created by the anger and revenge of God is equal to the pleasure anticipated from his love. Although, as the Bishop of Peterborough says, "Finality of belief is just what theologians like," the fact remains that the image of God changes as the nature of the people changes. The verbal description of God which literally expressed the ideas of savages, may remain in the "accepted revelation" of civilized peoples, but practically it is wiped out, so that the extreme terror which one would expect if faith was real instead of nominal, does not result. Besides, every one thinks of the savage element of deity as a danger to others rather than to himself, each expecting salvation for himself by use of the means provided by the particular theology to which he "clings."

Science and theology have existed together from the earliest dawn of intelligence in man. When a savage proceeds to cross a river in his canoe, or to light his fire by friction, he acts from faith in science; he expects that what happened before will, under the same circumstances, happen again. But this faith is unconscious and inarticulate. The eye of his mind will have

to increase greatly in strength before it can perceive the universal and invariable order of nature, and in the meantime theology serves as a "theory of things."

In a later stage, when science has completely supplanted theology in the mind, a feeling of irritation is often felt where veneration existed before. The existence of theology is felt to be an impediment to progress, and it is asserted that theology is not only of no use but a serious evil. Those especially devoted to the service of theology are looked upon as a set of cunning hypocrites, who have devised the theological dogmas as a means of making money and gaining power. In the main this is untrue and unjust. One might as well get angry at the sight of a baby's long petticoat, because he felt that if *he* was obliged to wear such clothes it would be a great obstruction, forgetting that, under certain circumstances, and for a time, these clothes are a comfort and no impediment! Just as the child grows, its skirts are made shorter, and of a shape adapted to its needs; as war, slavery, and polygamy have come to be recognized evils, though at other times, and under different circumstances, they were of use; so with theology: it is and has been of use to minds in a certain state, and, like war, slavery, and polygamy, will *gradually* die out as, from change of circumstances, it is felt to be not only useless but an evil. It is interesting to note the progress that has been made in our own country.

Two centuries ago theology was a subject of such interest to even the most intelligent that they took an active part in theological discussion—even Newton, the greatest scientist of his age, spent his time in writing on the Jewish prophecies. Faith in a manlike God and his constant personal interference in affairs was everywhere as strong as it is now in the Irish parts of Ireland. Not only did the faith of the time accept the existence of this manlike God as a very grave reality; but it filled the world, indeed all space, with a multitude of witches, fairies, goblins, ghosts, angels, and devils—in short, a host of miniature gods. The intensity of faith in their existence, and in their causal connexion with events, was shown by the flames of the many poor wretches burnt on the charge of holding intercourse with them. The most learned judges had no hesitation in saying that there could be no doubt in the mind of any rational creature as to the existence of these beings. And certainly, if their existence could have been established by human testimony, this is true. It might be truly said that if all the sworn testimony as to the existence of witches, and other imaginary beings, was written, "the whole world could not contain the books."

But though "finality of belief is just what theologians like," see what a change science and her methods have made in a few generations. All that mighty mass of testimony is swept away as rubbish. Poor creatures

trying to make a penny by pretending to have influence over the unseen are sent to the treadmill, not as witches, but as rogues. This is an evil due to the influence of scepticism, as the burning was to the influence of faith. Better let it alone, and leave experience to teach the truth.* Only harm is done when force is used to influence opinion. "Let every one be fully persuaded in his own mind." The fact that this principle is now very largely acted upon is a notable sign of the change wrought by science. Grant that "heretics cause eternal pain to their fellow-creatures," and you justify the contention that they ought to be killed.

In the days of our fathers theology was a very serious affair. Great wars were carried on and kingdoms upset by its influence. A theological war in Europe at present would be an impossibility. The answer of any one

* It is difficult to see the principle upon which a poor gipsy fortune-teller can be justly punished, whilst clergymen, who likewise profess to knowledge of the future and power over the unseen, are not only not punished for their pretensions, but honoured on account of them. If it is said the one is honest and the other dishonest, the question arises, "How do you get this knowledge?" The clergyman who professes to work on a child at baptism an invisible change, by repeating some words and sprinkling some water, that will save it from great danger of eternal pain, may be quite sincere; but why may not the fortune-teller be the same? Both processes give pleasure to certain minds, and, as they are not forced on any one, surely both had better be left unnoticed by the law.

to the question, What is the use of theology, would formerly have been that it was the guide of conduct in everything here, and the only ground of hope hereafter. The value of it seemed so great that everything else was contemptible. Now great masses never enter a house of worship. Though a few have faith as fervid as that of our forefathers, the great majority attend public worship from custom more than from conviction; from the motive that it is esteemed, not by themselves, but by others, the proper thing. Theology has now become, to a great many, a matter of emotion and nothing more. To them it is a mere source of pleasure. It acts as a stimulus to the feelings, such as awe, wonder, hope pride; these and other emotions are pleasantly excited, just as music gives pleasure by exciting a pleasing flow of feeling, while the intelligence is at rest.

It is a humiliating and depressing thought that the nature of God is and must remain to us incomprehensible; that there are bounds to our capabilities beyond which there is absolute darkness. Now, theology gives pleasure by affecting us with a delusive sensation of knowledge. Further, it gives pleasure by persuading us that God is in his nature such an one as ourselves, that we possess means of making him our friend, and that he is, in fact, bound by covenant to ensure our future happiness; and so far as it gives pleasure, so far it is of use, especially in the time of sickness and ap-

proaching death. There are many natures to which the sensation of darkness is repulsive and terrorizing, and to which, in the absence of light, a trustful calmness is impossible. Theology is of use to all such.

Perhaps it may be thought strange that we have not mentioned the promotion of morality as the great use of theology, that we have gone into holes and corners, as it were, searching for minute benefits, when the great good stood before us, in comparison with which all the benefits we have mentioned are insignificant. It is very generally taken for granted that it is in theology we find both the origin and sanction of morality; and it is to this supposition that theology in the present day owes it principal support. The rapidity with which numbers would openly abandon it would be astonishing if they could only rid themselves entirely of this traditional idea, that morality could no more exist without theology than a limb if cut off from connection with the heart. When we come to speak of Ethics it will be necessary to consider both the origin and the sanction of morality, and to contrast the scientific with the theological theories. It has therefore seemed better to postpone all discussion of this subject for the present. We do not deny that theology, with minds in a certain stage of development, has been and is of *some* benefit for the regulation of conduct. But when we come to examine the matter closely, reasons will be given for

thinking that the *amount* of aid morality receives from theology is very much less than is generally supposed.

But whether we are right or wrong in detail as to the ways in which theology is or has been of use to man, there can be no doubt—this the doctrine of evolution would teach us—that, the fact of its being a natural product, proves it to have served at some time some purpose or other. That purpose seems to have been to answer the question, put when intelligence became sufficiently developed to shape the inquiry, "How can these things be." As we have already pointed out, the growing reason demands a "theory of things," and the first and most natural theory is the theological one, viz., that the unseen cause of motion of everything objective is similar to the subjective cause of motion in ourselves. Behind each fact is a mind. First comes fetishism, when every event has a soul for its cause; then polytheism, when one spirit can control many facts, as little chiefs can command a number of men; and finally monotheism, universal monarchy, when one single spirit is supposed to be the universal cause.

This "theory of things" satisfies the craving of the mind during certain stages of its development. By degrees, however, the theory, or, in other words, theology, becomes inadequate and unsatisfactory. Facts are recognized which cannot be made to fit with it. Another—the true—theory is sought, and after long

search is at last found in science, viz., that of a cause beyond experience we know and can know nothing; that our boundary of knowledge is the law that facts follow each other in invariable order; that in that order cause is but the name we give a fact which invariably and necessarily precedes another; and that of a cause we know nothing more than this, that every similar cause is invariably followed by a similar effect. Gradually theology becomes not only of less use but an evil, as an obstacle to the progress of science. Organs of the body which are of service when first evolved may by change of conditions become useless, and by want of exercise gradually dwindle away; but during this process, though a process of nature, they are a burden and an evil. So with theology. By the rise of intelligence it gradually becomes useless and dwindles away. The conception of God as the unseen cause of all facts has been gradually losing its human qualities. In the times of the writers of the Pentateuch (Gen. iii. 8–xviii.; Exod. xxiv. 9–11) God had the bodily as well as mental qualities of man. In the time of Christ the bodily qualities are becoming extinct, the mental alone remain. These again have been since gradually decaying and dropping off. Anger, jealousy, sorrow, joy, and such-like emotions are used now by the most advanced only in a figurative sense. Love and intelligence are the chief remnants left of the original human conception.

Finally science is heard saying, "All attempts to know the unknowable, which reason leads us to believe in as existing behind knowable facts, are and must be futile." Theology or the creation of God in the image of man is, no doubt, as we have said, a natural product of the earlier stages of the human mind, and is then of use; but, as the intelligence advances, its benefit decreases, and finally, when science arrives, it becomes a direct evil as an antagonist. The time and energy spent in "accepting revelations and clinging to creeds" which might be used in "the discovery of facts" is so far a loss to science; but besides this serious loss she has at times to sustain the active opposition of theology—an opposition by which she is delayed in her beneficent work of giving man command over the forces of nature, and so enabling him, on the one hand, to relieve the sufferings; and, on the other, to multiply the pleasures of human life.

CHAPTER III.

THE METHODS OF SCIENCE.

BY the methods of science we mean the ways and means that science employs to accomplish her object, viz., the attainment of truth. A picture is a true picture when it is a correct representation of the facts symbolized. So is a mental picture true when it is a correct representation of facts. A proposition is true when it suggests or symbolizes a true mental picture. Truth is the correspondence between a symbol and the fact or facts symbolized. Verification is the process of proving this correspondence. When complete correspondence is found between our thoughts and the facts they represent, we are said to know the truth.

Now, as there are two distinct classes of facts, so knowledge is of two distinct kinds. One class of facts consists of our states of consciousness; these we call "subjective:" the other class consists of facts other than our states of consciousness, that is, of facts outside of and distinct from self; these we call "objective." Our

knowledge of subjective facts has one characteristic which clearly distinguishes it from our knowledge of objective facts. Subjective knowledge is absolute. There is never room for doubt: the symbol and the fact symbolized coalesce, as it were, so that disagreement is impossible. If we have a state of consciousness, an idea or a feeling, we cannot doubt that we have it: having the idea or feeling, and knowing that we have it, is one and the same thing. On the other hand, our knowledge of *objective* facts, whether it be correct or incorrect, never can be *absolute;* it is only inferential, not immediate; it is always more or less open to doubt, and our faith in it may vary from *practical* certainty to the feeling that it is a mere possibility. We can always imagine the negative of an objective proposition, never of a subjective.

Nothing is more important than a clear perception of the difference between the nature of subjective and objective knowledge; the confounding of the two is a frequent cause of error. Many things which we think are absolutely certain as matters of subjective experience are really not so, being but matters of inference. Take, for example, the statement, "I saw the sun rise this morning." This statement in its subjective sense means, "I had the states of consciousness called 'seeing the sun,' and the image of the sun appeared to rise above the earth;" the fact asserted is a subjective experience; that I had those states of consciousness there was and

could not be any doubt, and hence the truth of the statement is to me an absolute certainty. But the statement in its objective sense, on the other hand, means, "I saw the object, the sun, move and rise above the earth, therefore I know without a doubt that it actually did;" and in the statement in this sense there is a confusion between what is subjective and absolutely certain and what is objective and only a matter of inference. That the subjective sensations of the images of the sun and the earth separating were felt by me was *absolutely certain*, but the *inference* that these sensations were produced by the motion of the sun was not certain; it might or might not be true. The *sensations* and the *cause* of those sensations are two things—different and distinct. The first is a matter solely of subjective experience, the second a guess or inference as to the cause of that experience. This inference, that the movement of the sun was the cause of the sensations at sunrise, was made for ages by the human race, yet it was false, as science has proved. No evidence is required, no evidence is, indeed, possible for subjective facts except their existence. We either have certain states of consciousness or we have not. Their existence is the only possible proof, but it is absolutely certain. On the other hand, an inference may or may not be correct, and depends entirely upon verifying evidence. This evidence may be so convincing as to leave no practical

doubt, but in precise language no objective inference can be absolutely certain. The inference that matter or, in other words, an objective cause of our subjective states of consciousness exists, is practically certain, but not absolutely.

The fact that we cannot be absolutely certain of the existence of matter, and cannot prove it to a demonstration, leads some to deny its existence. These idealists, so called, are right in saying that all we know for certain is our present states of consciousness, that the belief in the existence of *something* called matter outside of self as a *cause* of our states of consciousness is only an assumption. This is true, and if the idealists stopped here they would be unassailable. But although it is not accurate to say that an assumption can ever be absolutely certain, yet it may by verifying evidence become *practically* certain. That the sun will rise to-morrow is an assumption, and *practically* certain, though not *absolutely* so. We have already stated that the so-called laws of nature are assumptions. That the order of facts observed in the past will continue in the future is not absolutely certain, but practically we have no doubt on the subject.

It may be thought mere trifling to draw these fine distinctions between absolutely certain knowledge and more or less certain inference; but it is not so, as ignorance of this distinction between subjective and objective

knowledge is a fertile source of error. For instance, nothing is more common than for people to believe in the existence of ghosts, because they have been told by some one (of whose veracity there can be no doubt) that he "saw a ghost." Now that the person saw, in a subjective sense, a ghost, there need be no doubt. That is to say, the person had certain states of consciousness, called visual images, and of this fact his veracity does not permit us to doubt. But whether these visual images were *caused* by something outside of himself, or by some particular state of his brain, is a matter of inference only, and the believability of it depends on the character of the verifying evidence. In such cases it is said that "our senses sometimes deceive us." This statement, however, is not correct: when we look at a straight stick one-half of which is in water and conclude that *it* is crooked, we are no doubt led into error; the source of deception, however, was not in our eye, though the eye gave us a bent image of the stick. Where the error began was in our *inferring* that that bent image was *caused* by a bend in the stick, whereas it was caused by refraction. It must always be borne in mind that the *existence* of states of consciousness is one thing and the *cause* of these is another. If the first exist it is impossible for us to doubt the subjective fact; but that is all we can be absolutely certain of. Any inference we may draw as to what is objective

depends upon verifying evidence, and this may vary both in quantity and quality to any extent, thus producing faith of varying strength as to the truth of the inference.

Another error (referred to on page 10) that similarly arises from the confounding of subjective and objective truth, is the regarding the qualities of an object as inherent in it instead of being subjective conditions in ourselves; for instance, when looking at a rose we say, "That rose is red," or, "That rose is fragrant." Taken in a subjective sense, these propositions are true. They then mean, "That rose gives me the sensation of redness," or the sensation called "fragrance," and I *infer* that the matter of the rose is of such a nature as to be capable of causing in me those sensations; but all I can assert to be absolutely certain is that those states of consciousness called "redness" and "fragrance" exist in me. But if these propositions are taken in an objective sense, and understood as asserting that the redness and the fragrance are in the rose, they are not true. Of this we can easily satisfy ourselves. If we put on a pair of spectacles with green glasses, the rose is no longer red, but of a very different colour, yet this change was, clearly, not made by any alteration in the rose. And if we have a cold in the head the rose loses its fragrance, but the alteration was entirely in ourselves, not in the rose. We see now very clearly that the common supposition that the qualities of an object are inherent in it is erroneous.

All the axiomatic truths on which we base our reasoning are subjective truths. We cannot conceive their negatives. The proposition stating the negative of an axiom is a contradiction in terms or, in other words, affirms that we have certain thoughts which we know we have not. For example, the axiom, "A part is less than the whole," affirms that my idea or mental picture of a part is not, and cannot by any endeavour be made to appear, as equal to or greater than the whole. The negative of this axiom stating that "a part is *not* less than the whole," is but affirming that my idea of the part is different from what I know it to be. This negative is also a contradiction in terms. It first affirms that a part is a portion less than the whole from which it was taken, for that is the definition of the word part, and then affirms that it is not less. The same is true of all axioms; their negatives are inconceivable, stating that we have ideas which we have not, and they are also contradictions in terms. All such propositions are incapable of any proof or verification: assent follows immediately on their statement. They are in fact nothing but affirmations that we have or have not certain states of consciousness, and whether we have or not admits of no doubt at all. Such is the nature of *absolute* knowledge. All other so-called knowledge is of a different nature altogether. Once we step out of self we are out of the land of certainty and into

that of inference and doubt. When we affirm anything of the non-self or objective, we make a guess, which may or may not be true; our assent depends upon verification or proof. If we put our finger into the fire, we have certain states of consciousness which we call pain. This is subjective and absolute truth. That there exists something outside of us called matter; that this matter was in a certain state which we call hot; that this hot matter was the cause of our feeling of pain—all these propositions are inferential, may or may not be true. Their truth rests upon evidence, and this varies in proportion to the amount of verification.

There are in scientific method two great processes in regard to inferential truths, viz., induction and deduction.

Induction is the process by which from particulars we infer generals—by which from some known facts we infer others which we do not know. For instance, when we burn our hand by placing it on red-hot iron, and find that the same result occurs every time we touch it, we draw from these particular cases the general conclusion that all red-hot *iron* has the property of burning us. Extending our experiments from red-hot iron to red-hot copper, red-hot platinum, &c., we have in each case the same result as before; we now draw accordingly the more general conclusion, that all red-hot *metal* has the property of burning us. Again, extending our experiments to still other substances in the red-hot state,

we have again the same result: we now draw accordingly the still more general conclusion that all red-hot *matter* has the property of burning us. This process of inferring that what is true of all the individuals we know of a class is true of the whole class, or that what is true of certain classes of facts—classes that we know—is true of the whole class to which these classes belong: this is the process of induction. In its practical application all danger of error is excluded by aid of precautionary formulas known as the canons of induction.

Deduction, on the other hand, is the process by which we proceed from generals to particulars. It is thus in order of procedure the reverse of induction—the latter beginning with particulars, and ascending to generals. If *from* the general proposition that all "red-hot matter has the property of burning us," we proceed to infer the particular fact that a red-hot *coal* will burn us, the process is that of deduction. If the general proposition from which we start is true, and we can show that the particular comes under it, that particular must also be true. Thus if it be true that "all red-hot matter burns," and if it be true that a "coal is red-hot matter," it must be true that red-hot coal burns, for this was really implied though not expressly stated in the general proposition. If, on the other hand, the particular be shown to be implied in the general, and at the same time false, it must follow that the general proposition

itself is false. In this way the deductive process, incessantly applied as it is to all general propositions, serves as a constant test of their truth. Found false in a single instance they must at once be discarded. The deductive process is used, again, not so much to test the truth of general propositions as to render the truth implied in them apparent—and so, in this sense, to discover it, in regard to particular cases. The general proposition that "the three angles of a triangle are together equal to two right angles," states nothing more than was already stated by implication in the axioms and definitions. What the deductive reasoning does, and all that it does, is to make this apparent. Mathematical truth is absolute for this reason, that its propositions are built up of nothing but definitions and axioms—axioms the negatives of which are contradictions in terms, or which in fact assert that we have thoughts which we know we have not. On the other hand, when a general proposition is derived from particulars which are inferential truths only, it cannot be anything else itself than inferential. Thus, the following syllogism (or argument stated at full length and in logical form) is composed of propositions each of which is inferential only. "All animals are mortal. Man is an animal; therefore man is mortal." This *mode* of reasoning is perfect—that is to say, *if* the first and second propositions (the premises) are true, the third must be true, as a necessity

of thought—but it must be always kept in mind that a syllogism does not *create* any truth, it merely exhibits it. If the links in a chain are perfect the chain will be *perfect*, but its strength is no greater than that of any of the links.

Induction and deduction, then, are modes of discovering and testing truths: in induction we begin with particular facts, and from these we construct general propositions; in deduction we begin with a general proposition and proceed to find out the particulars of which it is composed. The process of induction resembles the work of building a house with certain materials, and deduction an investigation of the house to see of what material it is built and what are its internal arrangements.

If a proposition stands the tests of both induction and deduction we have the best warrant possible for believing in its truth; that is to say, for the truth of a general proposition we have the best verification when all the particular facts known to us are in accordance with it, and when experience verifies all the particular propositions logically deducible from it. What all verification consists in, is appeal to experience. When Newton first formed the conception of the general proposition that "every particle of matter attracts every other particle with a force directly proportional to its mass and inversely as the square of the distance," he proceeded to test its truth by experience. Assuming the truth of the general

proposition, he found from deduction that the motion of the moon must be of a certain nature. An appeal to experience—or rather, supposed experience—failed to verify this deduction, and Newton put aside for a time as untrue the so-called "law" of gravitation. Some years afterwards he learnt that the reputed length of the earth's radius —an important element in the calculation—was not correct; and also what, approximately at least, the true length is. Newton now again tested his general proposition by an appeal to the particular fact of the moon's motion, and so found in experience the verification he sought. Experience since Newton's time having been without exception in verification of his general proposition, it is now called "a law of nature;" before verification it was only a theory. Theories built upon facts lying outside the range of experience—that is, upon imaginary facts—must remain theories, or castles in the air,—possible (if not a contradiction in terms) only so long as they are not inconsistent with some fact or facts of experience; but belief in them is entirely irrational.

Let us suppose that the following proposition is held by any one to be true: "There is exactly in the centre of the moon a being, who is in nature similar to man, and who in unseen ways affects circumstances on the earth." All that could be properly said of this theory would be, that until we could appeal to experience in its verification it was a mere theory, faith in which would be

irrational. If there were facts known to us, which appeared consistent with the theory, these would give a certain amount of probability to it, and our faith in it would be proportional to the difficulty we felt in supposing these facts to be true and the theory false at the same time. On the other hand, if known facts appeared inconsistent with the theory, a feeling of improbability would be attached to it, and our incredulity would be proportional to the difficulty we felt in supposing the theory and the facts to be both true.

This balancing of probabilities is the process by which we accept or reject all inferential or objective propositions to which we are not able or not disposed to apply any direct process of test. Such are the mass of propositions that come to us on testimony, and have as their subject matter personal and other incidents of ordinary life. If a person of veracity states that he met in the street to-day one whom we know to be alive and well, the probability that the statement is true is much greater than that such a person is lying—so much greater that we believe what he has said. But, on the other hand, had he stated that the person he met was Shakespeare the poet, the probability that the statement was false would be immensely greater than that it was true; in other words, to conceive it to be true would be a much greater difficulty than to conceive the narrator to have stated what was false, and accordingly we would believe

the statement to be false. Hence it is that in minds which feel little or no difficulty in conceiving the happening of a miracle, the statement that one has happened is believed on very weak evidence; while, on the other hand, to a mind pervaded by scientific principle and acting under scientific habit, the statement would hardly be credible even if supported by any conceivable amount of testimony. In mechanics there is the axiom, "Force always travels along the line of least resistance." So it is with belief. That which is least difficult to conceive offers least difficulty to belief, and so will always be believed in preference to that which is more difficult to conceive, and so offers more. To make us believe that on a certain night at a music hall one of the Christy Minstrels sang a nigger song and danced a break-down, the amount of evidence required would be very small; on the other hand, to make us believe that the Archbishop of Canterbury had done the same, would require very strong evidence indeed. The reason of this is plain: the probability of the one event would be exceedingly great; of the other exceedingly small.

This is the principle upon which rests Hume's argument against miracles, viz., "It is more probable that human testimony should be false than that miraculous stories should be true, because all our experience verifies the non-existence of miracles, and at the same time the

frequency of false testimony." Chalmers has made the best of the many attempts to answer this argument. "True," he said, "we have experience of false testimony and not of miracles; but we have *no* experience of *such* testimony being false as the testimony we have for the gospel miracles. No instance can be quoted of twelve men whose writings prove them to have been both moral and intelligent, spending their lives in testifying that they saw and heard what they did not see and hear, nay, even of suffering pain and death for their testimony of the facts. We have examples of men giving up their lives for opinions which were false, but none for saying they saw what they knew they did not see. In fact, it appears to us more improbable that *such* testimony should be false than that a miracle should be true." Such is the substance of Chalmers' reply, and the *argument* is sound in principle. The only answer to it is, that the facts assumed are not true. Instead of it being true that we have the testimony of a number of eye-witnesses to the miracles, we have not the testimony of a single one. Instead of the knowledge that twelve men spent their lives in testifying that they saw the miracles, we have not a particle of contemporary evidence of the life of any one of the apostles, or of Christ himself, or of one single eye-witness of what we would consider a miracle. Even in the writings of St. Paul it is remarkable that although he speaks in *general* terms

about "signs and wonders," he does not once state that he either himself wrought, or saw any other man work, a *specific* miracle.

It is not necessary to go any farther into the details of the processes of reasoning called induction and deduction: these can be found in any book on logic. All we wish to do is to point out the general principles of the methods used to get exact knowledge, and the means by which our guesses at objective knowledge are verified or proved false. If a theory is verified by an appeal to particular facts, and if, again, all the particulars deducible from it are found in experience, we are *practically* certain of its truth.

Such, then, are the two great methods of science. We shall now consider some of the chief characteristics of science in her use of these methods. Foremost among these characteristics is accurate observation of facts. That science may attain her great object, of discovering the laws of nature, such observation is manifestly essential. Observation is of two kinds: (1) simple; (2) experimental.

In simple observation we are mere spectators, as in observing the facts of the weather, or the motions of the heavenly bodies; we exercise no control over the facts to be observed. In experiment, on the other hand, as in chemistry, we ourselves arrange the facts; in other words, create the situation, and then observe the effects.

It may be supposed that for simple observation all that is necessary is to have acute senses—to be able to see, hear, taste, smell, and feel acutely. Other qualities, however, are required, and really good observers are, as a matter of fact, few in number. The difference in power of *correct* observation between such men as Faraday and Darwin and the majority is almost immeasurable.

The errors of observation are twofold—error of omission and error of addition: we may think we saw what we did not see, and we may fail to observe what was really present. The error of addition is made in two ways: (1) we mistake our *inferences* for *experiences;* or (2) having a dominant idea or desire, we mistake the creations due to it—creations of imagination for objective realities.

1. For example: observing that a substance has the colour of gold, we conclude that it *is* gold, believing and asserting afterwards that we saw a piece of gold. Here only one quality, colour, was actually observed; all the rest—weight, ductility, chemical qualities, &c., were not observed, but inferred.

2. Being affected by the dominant idea that a picture has been painted by a great artist, we see in it great beauties and meanings which, without the dominant idea, would have been invisible. There are pictures in the National Gallery, in London, painted by the great artist, Turner, near the end of his life; these pictures

are daubs so confused and indistinct that it is very difficult to make out what they were intended to represent, or which is the top and which the bottom of the pictures. The committee, we have been told, have more than once changed the position in which they were hung. Indeed, to give some explanation of their appearance, it has been said that they were painted probably when the artist was under the influence of drink. Yet numbers have *seen* in them wonderful beauties and meanings which would have been invisible had the pictures been thought to be the work of some obscure artist. Again, a book is read with a dominant idea in the mind that it is the miraculous production of God, such a book, for example, as the Koran, the Bible, the Zend Avesta, or the Book of Mormon; to the reader with this dominant idea every sentence is infallible truth, and the highest wisdom, though it may be the most childish nonsense, or even a contradiction in terms of some other sentence equally sacred. This which to an indifferent reader would be palpable at once, is invisible to the other. Dominant emotion has the same disturbing effect: "The wish is father to the thought."

A scientist, when observing facts bearing on some theory which he wishes to establish, has to be always on his guard, lest he fail to observe those which look against as well as those which appear to support him. It is for-

tunate for the cause of truth that though one observer may so fail, there are always among his fellow-observers some with a desire—a desire as dominant—to establish some theory or other counter to his. These complete his partial observation by observing and reporting every fact that is adverse to his theory. Such is the beneficent effect of perfect freedom of criticism: it is the breath of life to science. Only in the bracing air of scepticism and criticism can theories, the infants of science, grow up to be recognized as laws of nature herself. Every true friend of science must be the advocate of the most perfect freedom of speech, for without these the progress of truth is barred, and the evolution of man into a higher state of existence is impeded.

Another characteristic of scientific method, and one hardly less important than that of accurate observation of facts, is the definite and accurate use of language. Very considerable is the error that penetrates our minds through the *inaccurate* use of words, while the *indefinite* use of words leads us often to think we have real knowledge where in reality we have none. By indefinite language we mean words which are not accompanied by *any* clear idea or feeling. Such words are mere sound, not symbols of thought. By inaccurate language is meant the use of words which are not constant but variable symbols, producing in the mind at one time one state of consciousness, and at another time another.

One might imagine that a rational being would not use indefinite language; in other words, instead of speaking intelligently, merely make a noise. Yet nothing is more common. One can easily convince himself of this by asking for a definition of the word representing the subject or the predicate. One hears the charge brought against a politician of having acted "unconstitutionally." If we ask for a definition, it is most probable that the user of the word will be found to have had no definite idea, of which the word was a symbol. Many general terms, such as "freedom," "civilization," "Christianity," "religion," are commonly so used as to be indefinable; they may mean anything or nothing. People profess to *believe* (and imagine that they do believe) many propositions which are really unthinkable. It is, therefore, impossible that, in the accurate sense of the word, they could *believe* (that is, perceive that the mental representation corresponds with the facts symbolized): the proposition places facts in unthinkable relative positions, of which it is impossible to form a mental picture. Such propositions may be and often are *assented* to, but they cannot be believed, that is, their truth cannot be perceived. For instance, when we come to the chapter on Ethics it will be seen that the expression "free will" is unthinkable. Yet a great majority assent to the existence of "free will," and much talent and temper have been lost in disputation about what

cannot be represented in thought. For many years the unthinkable proposition, "Nature abhors a vacuum," was considered a satisfactory explanation of the force of suction, and as such it was assented to. As we shall see when considering its methods, theology supplies many examples of unthinkable language, and consequently of propositions which, though assented to and often with much fervour and great expenditure of emotion, are in reality unbelievable.

It will not be necessary to occupy any time in considering the danger of error from the inaccurate or ambiguous use of words. It is evident that such use must vitiate the whole process of reasoning. If we add up a column of figures and find the sum to be 100, and then in after calculations by inadvertently adding a little tail to one of the ciphers make the figure a nine, the final result must be wrong. So if, in reasoning, some word during the process changes its meaning, the conclusion must be unwarranted. Language, even the best, is a very imperfect instrument for expressing every shade and change of our states of consciousness. Words have to be used in more senses than one, and hence the liability of error through ambiguity of language. The greater portion of conversation being of merely trifling value, and having as its principal use the mere expenditure of emotion, it does not much matter whether the language has any definite or accurate meaning: the tool is fine

enough for its work. An old blunt hatchet answers for cutting up firewood, while a surgeon's instruments must be accurately made and perfectly sharp. So if we set ourselves the task of finding truths, language, our instrument of thought, must be as clear and accurate as possible.

Seeing, then, how easily error may find an entrance into our work in the use of the means and methods of searching for truth, science insists upon a constant appeal to verification. Where this appeal is impossible she refuses to enter, because there her work is impossible. Such a region is a dreamland, a territory of imagination, and of imagination alone; science and reason have no business there.

We now pass on to examine the methods of theology. The objects of science and theology being so distinct, we may expect to find very great differences between their methods. In the words of Bishop Magee, the first "discovers facts," the other "accepts revelation and clings to a creed." By the word "revelation" we understand "a number of truths made known to us by some superhuman means." The act of "accepting" can be best performed in very early life. At that period the reasoning faculty—perhaps the slowest in growth of all the faculties of the mind—is in its infancy compared with simple perception and imagination. Then is the time, before reason begins to ask questions,

[illegible] until they are answered, to [illegible] theology. There may be a few [illegible] and there who have "accepted" a [illegible] examined it and its credentials [illegible], but, speaking broadly, it may [illegible] everywhere "accept" their revela- [illegible] in the same manner as they do their dress, [illegible] and language: that is to say, in their [illegible] and without reason. When a revelation has [illegible] "accepted" the process of deduction is used [illegible] a "creed to be clung to." The [illegible] the syllogistic mode, is as [illegible] "All the sentences in this revelation having been communicated by God, are true. Z is a state- ment in the revelation. Therefore Z is true." The [illegible] is quite sound, and if the major premise (this revelation having been communicated by God is true) could be established by induction, we might place faith in the conclusion. But the chief cha- racteristic of theology is that it depends upon deduction alone. To verify by an appeal to facts is repulsive. As Bishop Magee says, "Science hates finality of belief," whilst "that is just what theologians like." The very proposal to verify a revelation that has been "accepted" implies doubt; and even to appear to doubt is of the nature of crime. To lay an "accepted" revelation on the dissecting table of criticism, to be cut up with

a view to examine its nature, is irreverent and even blasphemous in the eyes of a theologian. Hence faith without verification is the greatest of theological virtues —Blessed are those who believe like little children. If one have not the spirit of a child he cannot enter, much less enjoy, the theological world. To doubt in the least an "accepted" revelation is thus shown to be impertinent. The greatest men have for ages "accepted" the revelation. Who then is he that makes this demand for verification that he should set himself up in the pride of his intellect to doubt what so many men, men so good and so great, have for ages "accepted"? There is no answer to that terrible question. If one is not satisfied to "accept" on *authority*, he is out of his element in the theological world. Perhaps it may be said, "Scientific statements are accepted as well as theological ones on authority. The captains of ships accept the statements in the Nautical Almanack on authority and on authority alone. They do not verify the calculations for themselves. In fact, to the great majority all scientific statements are matters received on authority." This is true. Both scientific and theological statements are often received on authority alone, but the reasons in the two cases are different. A scientific statement is "accepted" on authority because we know the verification is to be had *on demand*. A theological statement is accepted on authority because we know

there is no verification to be had. A Bank of England note payable on demand, and such government notes not payable on demand as the French assignats of the Revolution, may be both "accepted," but for different reasons and with different results. The one is accepted because for it gold is to be had for the asking; the other is accepted but for the promise—the payment is not within measurable distance. In the words of the Bishop, "Science hates finality of belief," whilst "that is just what theologians like." Scientific statements are never final, never authoritative, always acknowledged to be dependent upon verification. Theological statements are "accepted" without verification, and "clung to as a creed."

When we consider the nature of theology it is evident that no other method is open. Theology treats of facts which lie outside of the range of human faculties, both in space and time. What is beyond the horizon cannot be subject to test, at least in our present state. We are told that in some indefinite time we shall be able to verify theological statements. But at present this is of no use to the doubter, nor will it be of use to him in the future, because when the time of verification has arrived, he will find himself where he will be supplied with an eternal verification by being eternally burned yet not consumed. But the "accepted revelations" contain statements of facts within the horizon

of human experience, such as "numbers, genealogies, geographical, chronological, physiographical, and geological facts." These can be tested by appeal to experience, and they have been so tested. But it was a mistake to mix these facts of experience with theological revelation, even although the writer thought they were true to the best of his skill and knowledge. This mistake has been recognized by eminent theologians. We have already seen (page 18) that the Archbishop of Canterbury says, it is "an acknowledged fact" that there is "a *human* element" in our revelation. The errors discovered, therefore, in the statements that are capable of test, far from disturbing our confidence in relation, may be "allowed quietly to float away." So satisfied, indeed, was the Archbishop with the "quiet" way in which he had got rid, as he supposed, of the "human element," that he went on with more courage, it is to be feared, than discretion to ask, "What on earth does it signify" if a "whole store of such difficulties are collected." Theology is safe on one condition only, viz., that she confine herself exclusively to things out of the reach of experience, such as the nature of God, souls, spirits, and the scenery and incidents of their ghostly surroundings and careers. Concerning herself with these she can remain undisturbed by science. As to them may be had that "finality of belief" which theologians like.

When science was young and weak, many and determined attempts were made to kill her. Since she has become strong, however, and evidently entered on a course of triumph, attempts are now frequently made "to effect a reconciliation" between her and theology. We have already seen that in the nature of things all such attempts must fail. Peace can be procured on one condition, and on one condition only, viz., separation. Theology can claim by right, as exclusively her own, the region of the supernatural. Her supposed facts are beyond the test of experience. They may be "accepted," but cannot be proved. Her methods are suitable to her nature—dogmatic assertion on and by authority. Deduction without induction is the method that yields the best results in "accepting revelations" and "clinging to creeds." So long as theology remains within this her natural sphere, there can be no conflict with science. Into that sphere science is unable to enter, and as to all things in it she both feels and acknowledges her ignorance: of them at least she can make neither affirmation nor denial. The motions of the moon she is able to deal with, but to deal with a manlike being in the centre of it, should any one allege the existence of such a being, is beyond her powers. Such an alleged existence being outside verification by any facts of experience, is not capable of being treated by scientific methods. So long then as

theology confines herself to the supernatural, so far as science is concerned there will be no war.

On examination it will be found that the battles between science and theology have been fought about what the Archbishop calls "the human element" of revelation, never concerning the superhuman. There have been great conflicts on such questions as: the age and authorship of books; the credibility of such narratives as those regarding Noah's flood, Joshua and the stoppage of the sun, Jonah and the whale, the pool of Bethesda, the resurrection of the dead, creation and evolution; but for all these conflicts theologians themselves have been to blame. The cause of all the unpleasantness lay in their not recognizing the fact that all these are "human elements," and therefore amenable to the methods of science. It will be well when all theologians can, like the Archbishop, "acknowledge" this, and allow the "difficulties" of Jonah and his whale, and Noah and his ark, "quietly to float away." Attempts to reconcile science with such things are not only ludicrously vain, but, by leading as they do to quibbling with words and even to attempted denial of facts, tend to immorality.

It is surely time to cease from all these attempts at reconciliation, and to acknowledge that theology should have nothing to do with any "human element," and should confine herself exclusively to the superhuman.

A theologian has the same hatred and fear of science as one has of a wicked dog by which he has got terribly worried. There is but one way of safety for him, let him keep outside the length of the chain. The scientist, being bound by the chain, as we may call it, of verification, cannot pursue the theologian into the unknowable: here then let the theologian remain.

Nor, again, is it possible for theologians to use the methods of science without producing effects destructive to theology. Let us suppose that, instead of "accepting" a revelation, they attempted to *prove* one, by scientific methods. Many questions would have to be answered, as, for example, what is meant by revelation? If it is the making known of truths by a superhuman method called "inspiration," that process would have to be described, and the means stated by which inspired thoughts were distinguished from uninspired. The facts would have to be collected by which might be inferred inductively the inspiration of any particular writer or speaker. Where are such facts, and how can they be verified? Where, when, and under what circumstances were the "inspired" books written? Give the verifying evidence for beliefs on these subjects. If it should appear that the writer or teacher was mistaken as to certain facts verifiable by human means, state the reasons for believing he must be correct concerning *superhuman* facts unverifiable by human

means. How, when, where, and by whom were any particular books chosen and selected from all the other books in existence which have been "accepted" by multitudes, as inspired? By what means did the selectors distinguish between the genuine and the spurious? It is quite evident that these and other such-like questions would be fatal to every supposed revelation. If any one doubts this, let him try the experiment, and he will be convinced that the Bishop of Peterborough was quite correct when he said that a revelation is a thing to be "accepted," and a creed a thing to be "clung to."

In speaking of the methods employed by science in "discovering facts," we stated that it is to her a matter of utmost concern to ensure correct observation. With correct observation, however, theology from her very nature has nothing to do. As she deals with what "the eye has not seen, nor ear heard, nor the mind of man conceived," it is evident that observation is, at least in this life, impossible. What may be open to observation hereafter, under circumstances totally different from the present, is matter for "acceptance" only.

Again, we mentioned that science "abhors" as a source of error language with either no meaning at all or with an uncertain and varying one. We shall now see that such language is "just what theologians like." We have already said (page 57) that one of the great

objects of theology is to generate emotion. For this end, there exists no means more efficient than indefiniteness of language. One can listen with pleasure to conversation, preaching, and oratory, and yet on asking himself afterwards what definite truths were stated or proved, find that he has to search in vain for an answer to the question. General terms are commonly used in such a way as to mean anything or nothing—generally nothing. If we once try to give any definite meaning to the words, the pleasurable stream of emotion is immediately dried up. This is easily verified by taking the speeches of politicians and the sermons of theologians, and subjecting them to a critical examination by substituting definite expressions for the general terms used in them. The result will show that the residuum of thinkable language bears a very small proportion to the whole, and has as little to do with the effect. Let us take a case.

In the year 1875 there assembled a number of ecclesiastics in Bonn. The object of their meeting was to find a solution to the question,—How can the differences in the creeds "clung to" by the Eastern and Western Churches be so adjusted as to allow a practical reconcilement. These grave theologians spent many days in solemn prayer and meditation and in deep conference together. No doubt the flow of emotion was copious, all of them feeling the immense importance and

the tremendous responsibility of their position. The results of their united efforts were at length communicated to the world; and among these we find the following language embodying the conclusion they arrived at as to the origin and nature of the "Holy Ghost": "That the Holy Ghost issues from the Father, as the beginning, the cause, the fountain of the Godhead. The Holy Ghost issues from the Son, because in the Godhead there is only one beginning, one cause by which all that is in the Godhead is produced. The Holy Ghost is the image of the Son, the image of the Father, issuing from the Father, and resting in the Son as the power reflected by him. The Holy Ghost is the personal product of the Father belonging to the Son, but not out of the Son, because it is the Spirit of the mouth of the Godhead, which pronounces the Word. The Holy Ghost forms the connection of the Father and the Son, and is through the Son associated with the Father." Now if we attempt to give some definite meaning to the words *Ghost, Father, Son, Godhead, fountain, issue, image, resting, power, reflected, personal product, mouth, connection,* it will immediately appear that the whole becomes mere sound unpicturable in thought. The reasoning also is something astounding. A issues from B *because* there is only one beginning in C. Again: A is the personal product of B belonging to but not out of D, because it is E which pronounces F.

All this indefinite, unthinkable language, perfectly useless for any intellectual purpose, is most efficacious in the production of emotion. During the time these worthy theologians were sitting in incubation over this production nothing could exceed, no doubt, in volume the emotional flow of awe and solemnity; and in this result we recognize its theological use. In theological language such a mixture of unthinkable words is called "high, holy, and mysterious *truth*." We should always bear in mind that this word "truth" has a very different meaning in theology from what it has in science. In science truth means a statement giving a correct representation of facts: in theology, truth means a statement supposed to be in accordance with the revelation "accepted" and the creed "clung to." In fact, theology and science do not speak the same language.

This fact, if remembered, will explain many things which otherwise are not to be accounted for. A theologian with apparent faith in the *truth* of his statements proclaims to his hearers that an infinitely good God has prepared two places—one of torture and one of delight. Into the first he has determined to place the greater portion of the human race, and into the second a select few. During eternity the majority will be gnashing their teeth with anguish, while the few will be singing the praises of God—his infinite wisdom and

his infinite goodness. If we follow the preacher and his hearers home from the church, we shall find them in half an hour at lunch, eating, and drinking, and laughing over frivolous gossip. Did we imagine the preacher and his hearers to *believe* in the *scientific* sense in the TRUTH of these statements, what we should conclude would be that they must all be plunged into inconsolable grief and terror. But how different from this, as we have seen, is the actual fact!

This anomaly is accounted for by the difference between the theological and scientific senses of the words truth and belief. The theological exhibition of "truth" was confined to the use of language taken from the "accepted" revelation; and the belief, the "accepting" of the revelation, to the evoking of a certain amount of pleasurable emotion. In a similar manner it would be most offensive to interpret in a scientific sense the description of a certain most solemn rite. To eat the body and to drink the blood of our greatest friend would in this sense be the most revolting cannibalism. But in the theological sense the rite is simply an awe-inspiring ceremony calling forth much emotion. To take the language in a scientific sense would be a grievous error, and give great pain to those who in the theological sense "believe" in its truth. The means adopted by the Society of Friends to evoke theological emotion, viz., of sitting together in silence, has the advantage of avoiding

the danger of turning theological language into nonsense by interpreting it in a scientific sense, and of so failing to produce pleasurable emotion.

Another means for the same end is that of using a language not understood by the people. But perhaps the most pleasing and efficacious means of all is the judicious use of flowers, music, and architectural beauty, and it may be anticipated that as science gets a stronger influence over the mind, making it more difficult to avoid interpreting theological language in a scientific sense, these will become more and more popular as theological means.

But the "human element" which, when mixed up with theology, tends more than any other method of action to sustain and prolong her life, is charitable and sympathetic conduct. Those who neither believe nor care for theology as a "theory of things" cannot avoid admiration for the exhibition of "the human element" of sympathy in the school and in the hospital. So long as a theologian is known as one who goes about doing good, he is safe from all attack. This "human element," unlike that which the Archbishop acknowledges to be found in the "accepted revelation," raises no "difficulties," which had better be allowed "quietly to float away." It is to be hoped that theology itself, as a "theory of things," will "quietly float away," leaving nothing behind but the religion of the heart,

shown by acts of goodness in helping to lessen pain and to increase pleasure by the means sanctioned by scientific knowledge. We say advisedly "by the means sanctioned by scientific knowledge," because "evil is wrought by want of *thought*, as well as want of *heart*." This marriage between "thought" and "heart" bringing forth the blessed fruit of goodness would be indeed a grand reconcilement, but it can become possible only when theology has "floated away," and religion has taken its place. When the intellect is no longer commanded to "accept revelation," and to "cling to creeds," and when the mind can look with solemn wonder indeed, but without fear, upon the impenetrable darkness that surrounds us, science, though she will most assuredly have dissolved the whole fabric of theological credulity, "leaving not a wrack behind," yet will have left undisturbed the peaceful trust. And when she has silenced the prayer of words, it will be but to substitute for it the prayer of work, to enforce the duty of labour—labour to reach the light of knowledge, and labour ever to do the right:

"Laborare est orare."

This leads us to the next part of our subject, "Ethics; or, the Science of Social Conduct."

PART II.

CHAPTER I.

ETHICS—INTRODUCTION.

BEFORE considering the origin and nature of ethics from a scientific point of view, we must answer the question,—Is a science of ethics *possible*. We have already seen that science is based upon the assumption of invariable order. Facts in a state of chaos, or subject to miraculous interference, are entirely outside of the scope of science. Now ethics being concerned with social conduct, the facts to be dealt with must be of two classes, mental and material. All scientists and some theologians in the present day are convinced of the reign of invariable law over *material* facts. But even among scientists there are still to be found some who feel a repugnance to the idea of the facts of mind being equally with the facts of matter subject to invariable law. Theologians of course are compelled by their system to dissent from this conclusion. To assent would be destructive of the theo-

logical assumption that the government of the world is directed by the personal interference of a manlike God. It will be well, therefore, to examine briefly some of the objections generally urged against the conclusion that law reigns over the facts of mind.

Perhaps the three following objections are those most generally felt: (1) "If mind was under law, free will could not exist." (2) "If mind was under law, moral responsibility could not exist." (3) "If mind was under law, man would be degraded to the character of a mere machine."

In examining the first objection we shall have specially to remember the caution of science as to the use of words. We have seen that the inaccurate use of language is a frequent cause of error. When one considers the immense amount of mental energy that has been expended in discussing "free will" one cannot help thinking that a great deal of this labour might have been saved, had the disputants made sure of the exact meaning of the words used. The confusion of thought upon this subject has in a great degree arisen from neglecting to ask the question, What is the meaning of the words *free* and *will?* Had this been done it would have exposed the uselessness of the dispute whether free will exists or does not exist. Let us now examine this preliminary question. The word *free* is applicable *only* to an organism or machine. A

machine is free when its functions can be exercised without impediment. A clock is free when it can, by the unimpeded movements of its different parts, tell the hours. If its pendulum is tied, the clock is *not* free. A piano is free when nothing prevents it from giving forth the sounds of the vibrating strings; it is not free if its keys are jammed or its strings covered with cloth. A man as an organism is free when he can exercise all his functions. The eye as a separate machine is free when it can see; it is not free when bandaged. The arm is free when it can move; it is not free when it is tied. Wherever the word free is used correctly, there are two things suggested, viz.: (1) an organism or machine, and (2) the absence of any impediment to the exercise of its functions. Next, what is the meaning of the word *will?* Will is a certain state of consciousness, as are wish, desire, anger. Will is the state of consciousness that is the *immediate* antecedent to an act, as wish is a state of consciousness immediately antecedent to will. All we know of will is as a state of consciousness.

Now we understand the meaning of the word *free* and the meaning of the word *will.* The first, *free,* denotes absence of impediment to organic action. The second, *will,* is a state of consciousness. But what is the meaning of the expression *free will?* or has it any meaning at all? Is it translatable into thought? Let us see. If we say that a piano as an organization is

free, the meaning is plain and intelligible; we assert that the piano is in such a condition that its functions can be exercised without impediment. But if we say that the melodiousness of the piano is free, applying the word free not to the organization, but to a condition of it, the expression is unmeaning and unthinkable or nonsense. The melodiousness exists, or does not exist; but it is absurd to speak of it as free, or not free. It would not be more incorrect to say that it was square or oblong. It is correct to say of a clock that it is free, our meaning being that its wheels and other parts are unimpeded in their motion. But it would be ridiculous to say that one o'clock—a mere condition of the clock—is free. We might as well say that one o'clock is polite. Such a combination of words is mere sound, not intelligible language. So when we apply the word *free*, not to the organization, but to a state of it, the state of consciousness called will, and say that the will is free, we are using the word free incorrectly, and really talking nonsense. The sentence, The will is red, would not be more unmeaning or more unthinkable than the sentence, The will is free. We can think of the state of consciousness called will, and we can think of the colour called red, but we cannot form the mental picture of the two together—a red will. Free will, then, we see is simply an unthinkable expression, totally devoid of any intelligible meaning. What is most probably meant when it is said the

will is free is that each individual is free. This is quite intelligible. Man as an organization may be free or not free. When man can exercise his functions he is free, and when, by reason of some impediment he can not, he is not free. Again, as the state of the organism varies, our states of consciousness vary. But the organism, being matter, is acknowledged to be under the law of invariable order: hence our states of consciousness as the products of its action must be so likewise. If the existence of states of consciousness depends upon the action of matter, and matter is subject to invariable order, it necessarily follows that mind and matter are equally under the law of cause and effect.

But it is often said, "Grant that I cannot answer the arguments adduced to prove facts of mind to be under the law of invariable order equally with facts of matter, yet I *feel* I can will and act as I choose, and follow my own strongest desire." This is thought to be a practical and conclusive answer to, and refutation of, all arguments for mental order. But it is entirely irrelevant. Rather, indeed, it is a statement of an example of mental order. It is quite true that our will not only may be, but invariably *is*, preceded by our own strongest desire. The desire which may have been the antecedent of the will on a certain occasion was itself the effect of other antecedents, and those antecedents, being absent or modified, that desire would be absent or modified. In other

words, that state of consciousness called a desire is a link in a chain of invariable cause and effect. The links in this chain of causes and effects which influence facts of mind are either but imperfectly seen, or else entirely unseen, by us. In this we have the explanation of the belief that facts of mind are not bound by the law of invariable order.

Because we cannot see and trace the links we imagine that they do not exist. This error prevails in other branches of knowledge, and from the same cause. When, as in astronomy or mechanics, the mind can trace the links of cause and effect in the motions of the heavenly bodies or of the wheels of a machine, it feels no difficulty in acknowledging law and order; while in meteorology, the science of the weather, the facts are supposed to be in chaos, because we *cannot* trace the links of cause and effect. Yet there is, no doubt, just as much regularity and invariability of order in the movement of every drop of rain and breath of wind as there is in the movement of a planet, or in that of a wheel in a machine.

But in reference to mind, not only is there a *difficulty* in recognizing the existence of mental order, but a repugnance is felt against such a recognition. This is caused by a misconception. When we speak of our mind being as much under the law of invariable order as matter is, the expression has a tendency to convey the idea that there exists objectively to us an entity that has power to con-

trol our mind irrespectively of our own desires; that, wish and will as we may, this ruling entity, "invariable order," will force us to follow a certain course. In the chapter, "What is Science?" we stated that a law of nature meant, simply and solely, the order of facts—the order in which, under certain conditions, we invariably find them occur. When we assert that mind is as much under law as matter we do not mean to say that there is a something distinct from mind which will force the facts of mind into a certain order. Thus we do not assert that, quite *irrespective of any action* of a particular individual, the mind of that individual will, at a certain time and place, have a certain train of ideas, that these will be followed by a certain desire, that that desire will become dominant and so pass into will, and this into some particular action. What we do assert is, that *if* the mind under certain conditions was affected in a certain manner we may be perfectly confident that under exactly the same conditions it will be affected in exactly the same manner. But it is said, "If this be so, and we knew what the conditions, both subjective and objective, of any person would be, we could foretell to a certainty his thoughts, feelings, and acts." This is true, but it is quite consistent with perfect freedom in the person. Knowing the conditions we can foretell what position the hands of a clock will be in at a certain time. If nothing prevents the clock from exercising all

its functions, of acting in accordance with its nature, that clock is free. Our knowledge of the nature of the clock can have no influence upon its freedom. So if the conditions are such that a person can exercise every function of his nature without restraint, that person is free in the only intelligible sense of the word. Suppose we know the evidence about to be given in a case before a certain judge, and that it will show beyond a doubt that justice lies on one side; and suppose also that we know the judge to be a competent and righteous man—in such a case we can foretell to a certainty the decision of the judge. But surely it would be a misuse of language to say that, because we foretold how the judge would act, the judge himself was not free.

But, paradoxical as it may appear, it is true that even those who deny that mind is under law, act every hour of their lives on the faith that it is. The stoutest denier of invariable order in mind is astonished if any one he knows acts in some unexpected way. But why astonished? If the same cause is not invariably followed by the same effect, how is the astonishment produced? If mind is not under law he could not have anticipated any particular action at any particular time or under any certain conditions. Practically, then, no one believes in mind being chaotic. We conclude, therefore, that invariable order and freedom are not inconsistent with each other; that while the expression, "free will," is

unmeaning, each person may be perfectly free—that is, capable of exercising without impediment every function with which he is endowed.

We now pass on to consider the second objection. "If mind was under law, moral responsibility could not exist." Our first object must be to understand what we mean by moral responsibility. A person is responsible when he can be rationally and justly called upon to *respond* to an inquiry as to his conduct, with the object of ascertaining whether punishment or reward ought to be dispensed to him. When we stumble over a stone we attach no responsibility to the stone: we neither punish nor reward it. But if a dog trips us up by running between our legs we hold him responsible, and administer punishment. If the peculiar shape of a stone attracts our attention, causing us to lift it, and in consequence to find a valuable diamond, we do not reward the stone. But if a dog fetches a wild duck for us out of a river we reward him. In other words, we attach responsibility to a dog, but not to a stone. If an idiot, or an infant, displease us by some of his automatic, involuntary acts, we do not hold him responsible; we do not apply punishment to him. But if a sane adult injure or benefit us by his conduct, we show that we think him to be a responsible being, by dealing out to him punishment or reward. What now is the essential feature in all these cases, the absence or presence of which

causes or destroys responsibility? Why do we attach responsibility to a dog and not to a stone, to a sane adult and not to an idiot or an infant? The answer is, Wherever we have reason to believe that punishment or reward will be effectual in procuring what we desire, or preventing what we dislike, there we place responsibility. Where punishment or reward would be evidently futile and irrational, there we do not place responsibility. An idiot steals something, but he is not held responsible because we have no reason to believe that punishment could have any influence in preventing a similar act in the future. A sane adult steals, and we hold him responsible and punish him because we have reason to believe that the pain of the punishment will cause a new link in the chain of cause and effect in his mind, thereby altering his conduct. When the thief stole, the strongest, the dominant desire at the time was to possess the property of another. This desire is called the motive or cause of the will to steal. By punishment we aim at creating a stronger desire than the desire to steal—viz., the desire to avoid the pain of punishment. When this change has been made, the conduct of the thief is altered, and the object of the punishment is attained. The man has been treated as a responsible being. The same process takes place when we attempt to change the motive by offering a reward. The motive in another to act in a

certain manner which we desire is not strong enough to become dominant, and so the cause of will. By attaching some benefit to that conduct we increase the strength of the motive to such a degree that it becomes dominant. In the same way, when we try by reasoning with a person to influence his conduct, we endeavour by the ideas produced in his mind to create some dominant desire which will be a motive to conduct. Where punishment and reward are rationally applicable as means of affecting conduct, there we place responsibility; where these would be futile we do not recognize any responsibility.

We have now investigated the origin and nature of responsibility, and nowhere have we been obliged to assume that mind is not under law. On the contrary, the assumption that mind *is* under law has in every case been necessary before responsibility is recognized. Nay, more, not only is the existence of invariable order in the facts of mind necessarily assumed, but unless we have some perception of that order, and so in some degree are made capable of altering effects by altering causes, no responsibility is recognized. The minds of idiots and infants are no doubt under law quite as much as those of sane adults; but the links of cause and effect being untraceable by us, we are incapable of any control or power to produce desired changes by punishment or reward, and therefore in them we do

not recognize the existence of any responsibility. In the case of an infant, just in proportion as the order of the facts of its mind becomes apparent to us, and our power thereby becomes greater to effect changes in that mind—to alter the motive desires by punishment or reward, so do we recognize the growth of responsibility. The conclusion, therefore, to which we are compelled is, that so far is it from being true that invariable order in the facts of mind would destroy moral responsibility, the very reverse is the truth: viz., no responsibility is recognized by us where invariable order does not exist, or is not in some degree perceivable by us.

We come now to the third objection, viz., "If mind was under law, man would be degraded to the condition of a mere machine." A machine is a whole composed of different parts so constructed and related that the functions of each can be exercised. The number and quality of the functions of a machine depend upon the number and construction of its different parts. The more simple the machine is, the fewer its functions or forms of work; the more complex, the more numerous. By the word *degraded* is meant reduced in number or quality of functions; in other words, become more simple and less complex. A man would be degraded by becoming a dog, and a dog would be degraded by becoming a plant. Each of these steps would be from more numerous and more complex functions to less

numerous and more simple. All machines or organizations may be divided into three classes: (1) Simply material; (2) automatic; (3) self-conscious. The capability of the first is confined to the transmission and change of force, the force being supplied to it by other means than its own. A steam engine, a lathe, or a watch would never exercise any function were they not supplied with energy from some external source. (2) The automatic machine is a material one with the additional capability of self-supply of energy in the form of food. To this class belong plants and the lower animals. (3) The self-conscious machine has the same qualities as the simply material and the automatic, with self-consciousness besides. To this class belong the higher animals and man. An organ-grinder, with a flower in his buttonhole, would illustrate the three classes of machines—simply material, automatic, and self-conscious. The flower is higher in organization than the organ, the man higher than both. Degradation being a descent from a higher and more complex state of organization to a lower and more simple, it would be correct to say that a plant would suffer degradation by becoming a simply material organization, or a man by becoming either a simply material or an automatic one. But it is incorrect to speak of man being degraded by becoming a machine. In fact, he would be degraded by becoming less of a machine;

that is, less organized than he is. It is exactly because he is, of all beings on this earth, the most highly organized (the most highly machinified, so to speak) that he is the most exalted of all—"the paragon of animals." The whole process, indeed, of his growth from the embryo to the complete adult is one of increasing organization, and therefore of continuous ascent in the scale of beings. This third objection, then, we find to be as unfounded as the previous two, and due, like them, to unscientific thought and inaccuracy of language.

We conclude, therefore, that there is no valid objection against the assumption that facts of mind as well as facts of matter are under the law of invariable order. That being so, a science of ethics is possible.

It must at the same time be acknowledged, not only that this branch of science is at present very imperfect because in its infancy, but that from its nature it is probably destined to remain imperfect. The perfecting of a science depends upon our capability of gaining a knowledge of the facts with which it deals. For instance, astronomy and mechanics are more perfect sciences than those of biology and meteorology, because the known facts in the former subjects are more numerous than those in the latter. This enables us to discover the laws of nature more easily in the one case than in the other. But though a particular branch of science may

be very imperfect, it does not follow that it is useless. On the contrary, the little we may know may be very valuable. The test of perfection of a science is the capability it gives us of foretelling events. Now our power of foretelling weather events is no doubt comparatively limited. We cannot foretell what the temperature will be on a particular day at a particular place; but we can foretell that January will be colder than July. Our knowledge though very imperfect is still very useful, helping us, as it does, to grow our crops and to save our harvests. So in like manner our power of foretelling the conduct of any particular individual on any particular occasion is very imperfect; but our power of foretelling the general effect of certain conditions on a mass of individuals is itself very valuable. And while our ignorance of the links of cause and effect in individual conduct may prevent us from foretelling individual acts, science can discover the laws by which the conduct must be governed if certain results are to be obtained, and the conduct that must be avoided if certain results are to be prevented. It is evident, then, that, even though the science of ethics be necessarily imperfect, it is within its scope to shield man from much evil and to procure him much good.

CHAPTER II.

THE OBJECT AND SCOPE OF ETHICS.

A SINGLE individual on a desert island, where no act of his could have an effect upon any one but himself, might be wise, but not virtuous—a fool, but not a criminal. The terms moral and immoral, good and bad, in an ethical sense, would be inapplicable to his conduct. If one plays the piano when there is no one else in the house who can be pleased or pained by the noise, such an act has nothing in it of an ethical nature, because the effect of the conduct is confined to self. The moment, however, that another who may be pleased or pained comes within hearing distance, such conduct becomes ethical.

Ethics is the science of social conduct. All the action done by a person as a unit of a society, that is, all action the effect of which, passing beyond self, extends to others, is ethical; and is called good or bad, virtuous or vicious, moral or immoral, according as it causes

benefit or injury. The object of the science of ethics is to discover the laws of social conduct. Now what is the exact meaning of the word *conduct?* Conduct is a species of which action is the genus. All conduct is action, but all action is not conduct; just as all crows are birds, but all birds are not crows. The species of action that is called conduct is that which is adjusted to an end or purpose. For example, a cough produced by the automatic action of the muscles is merely action, but a cough given to interrupt a public speaker is conduct, because it is action adjusted to an end. The adjustment to an end is the characteristic that marks off conduct from other forms of action, and that which distinguishes ethical conduct from other forms of conduct is, that the end to which its action is adjusted affects others as well as the actor. While, therefore, it is with social conduct alone we shall have to do in our inquiry into the nature of ethics, we shall be aided in understanding social conduct if we first examine into the nature of life action in general, of which social conduct forms but a part.

The life-history of every living organism is one of struggle for preservation and of struggle against destruction. It is manifest from this, that in the growth or evolution of organs, those only whose functions were helpful in this battle for existence, could ever have been established in any organism; for if the action of an organ

had brought the organism into contact with destructive conditions, that organism could not have survived. We have, therefore, reason to conclude that the functions of the organs in every organism tend to its preservation. There is one condition important for us to notice upon which the continued existence of every organ depends: viz., that the organ should have healthy exercise. We know by experience that exercise within certain bounds tends to strengthen, and disuse to weaken, every organ. For example, the arms of sailors and blacksmiths become by exercise developed and strong, while the arm of an Indian fakir becomes by disuse shrivelled and powerless. The eyes of fish that live in the light are preserved by the continued exercise of their functions, while those of fish that live in dark caves dwindle away and lose their functions. All living organisms without exception became what they are, then, subject to two laws: (1) the functions of every organ tend to the preservation of the organism to which it belongs; (2) exercise of the functions of every organ is necessary for its preservation.

Again, the action of each organism depends upon the complexity and number of its organs. Of the innumerable forms of living organisms there are only a certain number which manifest any action similar to what we know in ourselves, as that connected with mind. Where mind becomes a factor in life action there is always

found one peculiar kind of organized matter, viz., nerve matter. Of the nature of the connection of mind and nerve matter, however, we know nothing. All we can observe is—the order in which the facts occur. All the states of consciousness of which our mind is composed are divisible into three classes—emotional, ideal, and volitional. By emotional states we mean simply states of feeling, as anger, love, pleasure, desire, hatred, pain. Ideas are mental representations, sometimes called thoughts; thinking might be described, indeed, as a succession of mental pictures. Volition is the state of consciousness which immediately precedes deliberate action. A great part of the action of our organism is not accompanied by any state of consciousness at all, emotional, ideal, or volitional, as, for instance, the healthy, normal action of the heart, liver, stomach, &c. Some kinds of action, as weeping, are accompanied by emotion and thought, but not by volition. The action which will specially engage our attention—viz., conduct—is accompanied by all three. Conduct, being action adjusted to an end, requires thought to determine the means; the emotion of a desire as a motive; and volition as the antecedent of action. Our object now must be to find the laws of conduct, or, in other words, the invariable order of those facts of which the action called conduct is composed.

Among the emotions there are two which particularly

demand our attention, viz., pleasure and pain. One or other of them may be said to accompany all other emotions. The words pleasure and pain are not used for them, indeed, until they attain such strength as to thrust themselves upon our attention, yet when we consider their nature, it would seem to be correct enough to speak of them as being always present with all other states of feeling. The characteristic of pleasure is the absence of any desire that the emotion experienced should cease; and that of pain, the presence of a desire to escape from the feeling. A desire is a motive to change the present for some other state of consciousness. The state desired must be one of pleasure. In fact it is a contradiction in terms to say that we could desire pain. It would be equivalent to saying that we desire what we shrink from and do not desire. This may appear at first sight to be opposed to experience. Do we not often desire a state of pain? For instance, when we desire to have a tooth drawn, or to part with a person we are fond of, do we not in such cases desire pain, not pleasure? The answer is, No. In these cases the pain of drawing the tooth or parting with the friend is not the object of desire, but the pleasure of getting rid of the toothache, or of benefiting the friend. The accompanying pain is submitted to as a necessity, but not desired for itself. If it was, the feeling would be no longer pain, but pleasure. What-

ever, therefore, be the object of desire which forms the motive of an act of conduct, it must necessarily contain the element of the bringing of pleasure or the avoidance of pain.

If we seek an explanation of the genesis of these emotions, pleasure and pain, the doctrine of evolution will aid us. We have already seen reason for concluding that in the building up of an organism by the slow and gradual process of the evolution of organs, each of these by their functions must be of such a nature as to be preservative of the organism of which it forms a part. When an organism has arrived at that stage of evolution when states of consciousness form a part of the product of the normal exercise of some of its functions, those states of consciousness must be of a pleasurable nature. For let us suppose the contrary, that is, that the state of consciousness attached to the exercise of the functions of any organ were of a painful nature, or, in other words, one which the organism shrank from and tried to avoid, the result would be that that organ would not be exercised. But we have already seen that every organ left without exercise dwindles away and becomes defunct. It follows from this that the state of consciousness attached to the normal exercise of every organ must contain the emotional element which we call pleasure. All experience, so far as we can observe the order of facts, confirms

this conclusion, as also the corresponding conclusion that the feeling of pain is a state of consciousness invariably attached, not to the normal and healthy exercise of the functions of some part of the organism, but to the process of destruction or injury. So far, then, as we can observe, the process of injury to any part of the body, if accompanied by any state of consciousness at all, is accompanied by one of pain, while the normal, healthy exercise of functions has attached to it the emotion of pleasure. Pain is invariably the flag or signal of distress, and pleasure of well-being. Pain may be likened to the heat produced in a machine by destructive friction, and pleasure to that musical hum which comes from a machine that is doing its work without injury to itself. If this be true within the entire range of our observation we are justified in concluding that it is true also in those cases where the links of cause and effect are beyond our ken. We may not be able to observe the connection between pleasing sounds and the normal, healthy exercise of the organs of hearing, and between painful sounds and injury of those organs, nor may we be able to observe the connection between painful thoughts and injury of the organism; still it is legitimate to conclude that there is such a connection, since analogous observable facts are without exception in unison with it. Indeed, if painful sounds or thoughts are sufficiently intensified, the mag-

nification enables us to perceive the injurious result though the precise manner of its production be hidden from us. Injury to health, and in the case of painful thoughts even death itself, we see among such results. We conclude, therefore, that pleasurable emotion is attached to the normal, healthy exercise of every part of the organism that is connected with consciousness, and pain, on the other hand, to action tending to destruction.

There are facts which may appear to be inconsistent with this theory, but which are really not so. For example, the primary effect of alcohol, sweets, and such things, is pleasurable, and yet we know these things may be injurious. But it should be observed that at the time and in that part of the organism producing the pleasurable emotion injury has not begun. When, afterwards, injurious action has set in, pain takes the place of pleasure.

Even rest or inaction when injurious is accompanied by the feeling of pain. Young people full of vigour, whose muscles and nerves require much exercise for their healthy development, suffer absolute pain when obliged to remain at rest for any length of time. When they are older, and the need of exercise is no longer necessary for the preservation of the organism in health, this pain from inaction diminishes and the injurious effect lessens. A similar fact is to be observed in a person of large and active brain placed in a position

where intellectual exercise is impossible; he suffers pain because that part of his organism is being injured. In fact perfect happiness or the sum of all pleasurable feelings of which a person is capable might be defined as the result of the full and healthy exercise of *all* his functions, or, in other words, of a perfectly full and free life.

In the causal order of the mental facts which invariably precede conduct, will is the immediate antecedent, and desire or motive the antecedent of will. Next in order comes thought or ideas. Thought becomes a link in the cause of conduct only when it generates a desire. Any number of mental pictures or ideas may be presented in consciousness without becoming a cause of action: thus in the absence of desire one can look at many different dishes without their producing any effect upon the conduct. If, on the other hand, a desire to taste a dish arises and becomes dominant, then comes will, and then the appropriate conduct. In such a case, it might be said, it was the sight of the dishes that was the cause of the conduct of tasting one. This is true in a sense, but it is very important to remember that the sight of the dishes was only *mediately* the cause of conduct, and that it was only by creating a dominant desire—a desire passing into will—that it became the cause of the conduct. So the thoughts or mental pictures of many possible modes of conduct may pass through our mind without any of these ideas

becoming even mediately the cause of conduct, unless a desire becomes dominant, and so the motive or cause of will. We have used the expression *dominant desire* instead of the word *desire* without the qualifying adjective. We have done this advisedly, and for this reason: it is possible for us to have present in our consciousness several different desires at the same time, not one of which may become the cause of will, because none of them prove so strong as the desire, the strongest, not to act in the manner they suggest. And as the desire strongest at the moment is always the one which becomes the cause of the will and the conduct, it is named the dominant desire. As in mechanics force always travels along the line of least resistance, so does the mental motive spring from the desire *strongest* at the moment. This theory, that in all conduct every one acts from the motive of his own strongest desire, may seem equivalent to the assertion that every human creature is a perfectly *selfish* being. This, however, is not so, and we shall be easily convinced that this inference is not a just one when we examine it by scientific method. In this case as in so many others the error springs from want of precision in the use of words. Let us first ask, What is the exact meaning of the word *selfish?* A selfish person is one whose acts, although others are to be affected by them, spring from motives in which there is no consideration of any being but self. Now it is true that every voluntary act must be a *self*

act; that is, the act of ourselves and not of any other person. But a self-act and a selfish act are not necessarily the same thing. A benevolent act, that is, one motived by consideration for others, is as much a self act as the most selfish.

An illustration will make this plain. Three wounded soldiers lie together on the battle-field; two have their water-bottles, the other has none. Both of those who have the water, see the agony caused to their companion by the want of it; both hear his groans. On one, A, the sight of the parched lips and feverish eyes has a powerful effect; his sympathy is aroused, and he shares with his companion his bottle of water to the last drop. On the other, B, the sight of the sufferings of his companion falls with no more effect than the sight of the stones lying on the ground, and he drinks without a thought of offering him a drop. There is no doubt that A was a benevolent person, and B a selfish one; but it is equally certain that each acted from what was at the moment his own strongest desire. The fact, therefore, that all our acts must be the result of our own strongest desire is not inconsistent with the existence of the greatest benevolence and so-called self-sacrifice.*

* Self-sacrifice consists in a motive that contains an element of sympathy with others, overcoming another in which self alone was regarded. For example, a father is engaged reading in his library, a child enters and asks him to join in some play in the nursery; to this he assents, though, if self alone was to be considered, he would remain in the library.

In these two chapters we have had under consideration some of the general principles that govern all life action and conduct—a consideration necessary before treating of the peculiar branch of conduct with which ethics has to do, viz., social conduct. The following is a summary of the conclusions we have come to, and which in the following pages will be assumed to be true. 1. Facts of mind are equally with facts of matter under the invariable law of cause and effect. 2. Every living organism has become what it is by the process of evolution. 3. The functions of every organ are of such a nature as tend to the preservation of the organism to which it belongs. 4. In those organisms in which states of consciousness exist, the normal and healthy exercise of every organ connected with consciousness is accompanied by the feeling of pleasure. 5. The feeling of pain is always attached to some organic action of a destructive tendency. 6. The immediate mental antecedent of conduct is the state of consciousness named will. 7. The immediate antecedent of will is the state of consciousness named desire or wish. 8. Every person acts always from what is at the moment his own strongest desire. We now pass on to consider social conduct.

This is self-sacrifice. All that has taken place is this: the motive or desire leading to conduct affecting self alone was overmastered by a stronger one, leading to conduct affecting others as well as self. In both, however, the actor acted from what was at the moment his own strongest desire.

CHAPTER III.

THE ORIGIN AND NATURE OF THE MORAL CODE.

ALL social conduct is divided ethically into two kinds: viz., good and bad. The good is called virtuous or moral; the bad, vicious or immoral. As our first step towards a knowledge of the nature of this distinction or basis of the moral code, let us translate into clear thought these words, *good* and *bad*. What is their precise ethical meaning? Anything adjusted for some end or purpose, and efficiently accomplishing it, is called "good." A piano is good when it fulfils the end for which it was made—viz., to give out pleasing musical sounds. A road is good when it makes travelling easy. A rifle is good when it throws the ball in the direction intended. The root idea of goodness in all these cases is *efficiency*. That which satisfies our wish and intention we call good. On the other hand, that which fails to do what it was intended and expected to do we call "bad." A piano is bad when, instead

of giving pleasing musical sounds, it gives harsh and unmusical ones. A road is bad when it is uneven, making travelling difficult instead of easy. A rifle is bad when it does not throw the ball straight, but crooked. Inefficiency is thus the characteristic of badness, as efficiency is of goodness. Before pronouncing any act of social conduct to be good or bad, it will be necessary to understand what is the end or purpose which the regulation of social conduct is intended to serve. Until we know this we have not the means of judging whether it is efficient or not. Now social conduct is conduct adjusted for social purposes, or, in other words, for the preservation of a social state—society, and the purpose or end of a society is co-operation.

In the chapter on "The Use of Science" it was shown that man, so far as his own personal strength is concerned, is a weak and puny creature, and that it is almost entirely by the aid of the forces of nature outside of himself that he is enabled to accomplish all he does. For the possibility of availing himself of these forces he is, as was shown, indebted entirely to his knowledge of the laws of nature. But even with this knowledge he would be comparatively helpless if unaided by the co-operation of his fellows. From the moment of his birth he is dependent upon the aid of others. The lowest races, those the least raised above the brute, are those amongst whom there is the least social co-opera-

tion. Those nations which have risen the highest in the scale of civilization are those in which social co-operation has been most highly developed. The more man becomes a social animal, the more he becomes dependent for his existence on the co-operation of society. The preservation of society thus becomes a matter of self-preservation. Now certain conduct tends to enable individuals to live in social contact; other conduct tends to prevent them from doing so. The first is efficient for social purposes, and is therefore called, in an ethical sense, good. The second is inefficient for social purposes—antagonistic, and is therefore called bad. Good social conduct is conduct that tends to draw individuals closer together; bad social conduct tends to repel them from one another, and thereby to make society impossible. The one is efficient, making co-operation easy; the other is inefficient, making co-operation difficult or impossible. Just as a road is called good if it is efficient by making travelling easy, and bad if by its inefficiency it makes travelling difficult, so social conduct is called good if it makes co-operation easy, and bad if it makes co-operation difficult.

The moral code consists of two divisions: one contains the good conduct or virtues, the other the bad conduct or vices. It is necessary here to distinguish the two senses in which the term moral code is used, viz., the subjective and the objective. In the first it denotes

what are *esteemed*, or considered by any society, virtues and vices; in the second, what are, *in matter of fact*, virtues and vices. The subjective might be called the opinionative code, and the objective the absolute code. These two codes may or may not agree. The failure to mark the distinction between them has led to the following error. "Morality," it has been said, "is a mere matter of custom, and depends entirely upon the latitude and longitude of the country. In Cairo polygamy is a virtue, in London a vice. Even in the same country the code differs at different times. Duelling fifty years ago was a virtue in England, and now it is a vice. On the Continent it is a virtue still." Now, in the subjective sense this is true, but in the objective sense it is not true. In the opinionative code of Egypt, no doubt, polygamy is a virtue; but whether it is so in the absolute code depends entirely upon the question of fact, whether polygamy benefits society or whether it does not. With this question opinion has nothing to do. Polygamy either tends to benefit society or it does not; what people think is irrelevant. The Ptolemaic system of astronomy—a subjective or opinionative system—made the heavenly bodies to revolve round the earth. The Ptolemaic opinion, however, had no influence on the motions of the heavenly bodies; and, as a matter of objective fact, they did not revolve round the earth. Similarly the fact of conduct being entered

as virtuous in the opinionative code does not make it so in the absolute code.

The doctrine of evolution justifies us in supposing that, at the time when any conduct was first adopted, there was some agreement at least between the subjective and objective codes. The reason of this is the same as led us to the conclusion that the functions of every organ which has been evolved in an organism must have tended to its preservation. Had such functions been destructive the organism could not have survived to form a race. So any society that adopted as a virtue some line of conduct that was in reality a vice would have been so far weakened, and accordingly less able to survive in the struggle for existence through which every society, as well as every organism, has to pass. But though the opinionative and absolute codes may be in agreement at one time, they may differ at another. The reason is this: conduct that under certain circumstances would tend to strengthen a society may under a change of circumstances tend to weaken it; just as the clothing and food that are in the Arctic regions preservative, would be in the Tropics deleterious and destructive. The ethical character of conduct must change, if circumstances change the ethical results of that conduct. As a matter of fact, conduct, however good it may have once been, is no longer good when it tends to injure a society. It must be therefore, in the absolute code, a vice. In the

opinionative code, however, from the force of custom, the same conduct may be found still registered as a virtue. We know that all conduct when long repeated has a tendency to become instinctive and stereotyped, and therefore to exist in the character long after the original cause of it has ceased to exist. In some nations this conservative tendency is more marked than in others, and no doubt by giving stability would prove of some benefit, especially in the earlier period of their history. But if it is so strong in a people as to destroy the power of changing as surrounding circumstances change, that people after a certain stage of evolution has been reached remains stationary. This is illustrated by such countries as India and China. Lines of conduct which, by increasing the rigidity of the structure, so to speak, of a society, were efficient at one time for the preservation of the society against the assaults of surrounding enemies, may at another time be potent to hinder its advance in civilization, and be therefore injurious. In other words, conduct which at one time was a virtue, in both the opinionative and the absolute codes, may come to be a virtue in the first only, and a vice in the second.

The quality of goodness or badness in conduct is determined by the nature of the co-operation for which the society exists. Social co-operation is divisible into two principal kinds—viz., military and industrial. The

end or purpose of military co-operation is to defend the society against the attacks of enemies, and to subjugate other societies. The characteristic of military co-operation is that in it the conduct of the many is regulated by the few: the desires and wills of the mass are subordinated to the will of a commander. The purpose of industrial co-operation is the mutual supply of individual wants. The characteristic of industrial co-operation is that in it the conduct of the individual is voluntary, and regulated by individual desire. In military co-operation the initiative of individual conduct rests with a chief; in industrial, with the individual himself. Every nation exhibits within itself both military and industrial co-operation. In the earliest period of a nation's history, however, the military preponderates greatly over the industrial. The nation spends the greater part of its energy either in defending itself from, or in conquering, neighbours. As a nation advances in civilization, or, in other words, becomes more social, the industrial type of co-operation advances, and the military loses ground. These two systems, the military and the industrial, are so distinct and, in many respects, so opposed to each other, that conduct which would be good where the military system prevails might be bad where the industrial prevails. Conditions which would strengthen an industrial, might destroy a military organization. What a member of the one

would esteem as a virtue a member of the other might hate as a vice. Individual independence, for example, and liberty of action to the greatest extent possible consistent with the like liberty in others, would be beneficial in the industrial state; they would be destructive in the military. The chief bond which keeps a military society together being the fear of physical pain, the sympathetic emotions are but little regarded. In an industrial society, on the other hand, co-operation being voluntary, manifest disregard of emotion would be repellent, keep the members asunder, and thereby prevent co-operation. Conduct, therefore, of a tyrannical and cruel nature, which might be esteemed virtuous in a military state, would be vicious in an industrial. But though the moral code differs in its specific details under different circumstances, the principle on which it is formed remains the same: conduct tending to make co-operation easy is good, and conduct tending to impede or prevent it is bad.

But the moral codes of different peoples, and of the same people at different times, differ greatly, not only in specific details; they differ also greatly in extent and complexity. The acts enjoined as good or forbidden as bad in a primitive society are very few, and the rules of conduct very simple compared with such acts and rules in a civilized nation. The reason of this is evident. The wants and desires of

man in the primitive stage are few and simple. All of them, again, or almost all, are capable of being satisfied by his own exertions. There is, indeed, but one important exception, viz., the want of protection from enemies. For this almost alone he needs the aid of others. Hence military co-operation, and that only occasional, covers for him almost the whole area of social conduct. His rules of social conduct are therefore few and simple, and such as belong mainly to the military type. In a civilized nation, on the contrary, the rules of social conduct are both numerous and complex. Besides those contained in public legislation there are the innumerable rules of private social conduct in the family and other divisions of society. The extent and complexity of the moral code varies directly as co-operation increases, and co-operation increases as the wants of man increase. As man becomes evolved from a solitary and selfish into a social animal, the necessity of co-operation constantly increases. Self-preservation and the preservation of the society are indissolubly linked together. Now a society, like all other things that exist, can exist only on certain conditions. One condition essential to the existence of a society is that the social conduct of the members of it should be such as to draw them together. If the members of a society conduct themselves in such a manner as to repel one another, all co-operation must

cease, and this, when man has once become a social animal, must entail destruction. By his own solitary exertion he could not provide for the wants of the body; what his mental experience would be we may judge from the well-known fact that solitary confinement if prolonged causes the destruction of the mind.

The scientific account, then, of the origin and nature of the moral code is this. The rules of social conduct of which the moral code consists arise from the necessity of social co-operation for the preservation and well-being of man. The aim of the moral code is, on the one hand, the prevention of all modes of conduct that are bad, or, in other words, prevent or impede social co-operation, and, on the other hand, the encouragement of all modes of conduct that are good, or, in other words, promote it.

Before considering what is called "the sanction of the moral code," or the means by which good conduct is encouraged and evil restrained, we will examine the origin and nature of the moral code from the theological point of view.

In the chapters on science the foundation of all theology was shown to be the theory that the unknown cause of known facts is of manlike nature. This theory is the outcome of another, which (from its universality among peoples who have risen to some degree of intelligence) seems to be a natural product of the

primitive mind, viz., that man is a twofold being, consisting of a visible element and an invisible—the man and his ghost or spirit. All manifestations of force are attributed to the same cause as man knows to exist in himself as consciousness. Primitive mind throws itself, so to speak, into the objects around it. This is the fetishistic stage of theology. When society becomes developed enough to be governed by a chief, and when the ghost theory has established the custom of worshipping the ghost of such chief after his death, the polytheistic stage has been attained. From this stage to the monotheistic is but another easy and natural development of the invisible-ghost theory. Indeed, as the range of power of personal government increases from that of the local chief of a small tribe to that of a monarch over all known people, the conception of monotheism becomes inevitable. One manlike ghost rules over the whole universe—"King of kings and Lord of lords."

Now the early state of society is almost wholly of the military type, and in it consequently the form of government is despotic. The regulation of social conduct comes from the desires and will of the chief. The industrial type of society where the initiative of conduct comes from the desires and will of the individual members of the society has in primitive times scarcely any existence. Theology at this time supplies the

ruling theory of things. The desires and will of the invisible manlike ghost—the God of the nation, are the source of all authority, and from him come all commands regulating conduct. The visible and living chief is the executive officer of, and derives all his authority from, the invisible God. Where this theory is dominant the natural and rational deduction is, that the origin of the moral code is the expression of the will of the invisible manlike ghost, and that its nature is to make goodness of conduct to consist entirely in obedience to that will, and badness in disobedience. Conduct in conformity with command is virtue; conduct in violation of command is vice. In this theological theory the natural results of conduct are not only irrelevant, but to take them into consideration partakes of the nature of sin. The single and only object in all conduct should be to please and gratify the desire of the God by obeying his command.

To justify this account of the theological theory of the origin and nature of the moral code we shall give here some theological utterances. These will be taken from the theology most familiar to us in this country; but all systems of theology are in principle identical, however different in detail. In the Hebrew theology the first man and woman are represented as having been placed in a garden, in which was "every tree that is pleasant to the sight, and good for food;

the tree of life also in the midst of the garden, and the tree of knowledge of good and evil." "And the Lord God commanded the man, saying, Of every tree of the garden thou mayest freely eat; but of the tree of the knowledge of good and evil thou shalt not eat of it: for in the day that thou eatest thereof thou shalt surely die." Here it is to be observed that the command was, to all appearance, a perfectly capricious and despotic one. No reason is given why the fruit should not be eaten; a threat of punishment, simply, is uttered against the eater. A person of any intelligence would, if he listened to the dictate of reason, have come naturally to the conclusion that the fruit of this tree was the fruit he ought to eat of. Just introduced into a strange world, without any experience either of his own or of an ancestor, he might well think that a knowledge of the difference between good and evil was the very thing he ought to try and get. The tree, indeed, appears to have been made in every way desirable—"good for food," "pleasant to the eyes," "and a tree to be desired to make one wise." Yet to eat of that fruit—and simply because a command had been given against it—was so great a vice that the misery of the whole human race does not, to the theological mind, appear a punishment too great for it. Let us take, again, the case of Abraham. "God did tempt Abraham, . . . and he said, Take now thy son, thine

only son Isaac, whom thou lovest, and get thee into the land of Moriah; and offer him there for a burnt-offering upon one of the mountains which I will tell thee of." Here we have a command to commit one of the greatest crimes possible. Yet Abraham, because he obeyed, and without hesitation agreed to become the assassin of his son, is held up to all the world as a pattern of virtue. The God is represented as so delighted as to be moved to swear—"Because thou hast done this thing, and hast not withheld thy son, thine only son: that in blessing I will bless thee, and in multiplying I will multiply thy seed as the stars of the heaven, and as the sand which is upon the sea-shore; and thy seed shall possess the gate of his enemies; and in thy seed shall all the nations of the earth be blessed; *because thou hast obeyed my voice.*" Acts thus become instantly reversed in their nature the moment a command is given; that which was a virtue becomes a crime, that which was a crime becomes a virtue. The whole moral code originates in the mere will of the manlike God. The nature of virtue is that it fulfils this will and so pleases the God; the nature of vice is that it thwarts this will, and so angers him. The effect of conduct may be in the nature of things beneficial to man, but that does not make the conduct virtuous. Nay, this fact tends to destroy any virtuous quality in it, making the conduct to appear the result rather of the desire and will of the

actor than of simple obedience to the will of God. The great feature of Abraham's virtue was, that whilst the conduct prescribed was revolting to his whole nature, he yet obeyed the voice of command. It was the one quality of obedience that so pleased the God as to make him swear that he would pour blessings upon Abraham. From the theological point of view the first step towards goodness is unquestioning obedience— "becoming like a little child" — being ready to do violence to our own conscience and feeling and reason. "If any man come to me, and hate not his father, and mother, and wife, and children, and brethren, and sisters, yea, and his own life also, he cannot be my disciple." "So likewise whosoever he be of you that forsaketh not all that he hath, he cannot be my disciple."

The contrast, then, between the theory of theology and that of science is quite as great in regard to the origin and nature of the moral code as we have hitherto found it to be in other respects. Science traces the origin of the moral code to the nature of things. Co-operation becoming necessary, rules of conduct become necessary. The fact that man has become a social being carries with it the genesis of the moral code. Theology supposes the origin of the moral code to be found in the mere desires and will of a manlike God. Science asserts that the nature of the

moral code, or the distinction between moral good and moral evil, consists in the *effect* of social conduct. If conduct tends to make co-operation easy, it is good; if conduct makes co-operation difficult or impossible, it is bad. Theology supposes that all conduct in accordance with the desire and command of a manlike God, *whatever may be its natural effect*, is good; and that all conduct not in such accordance, *whatever may be its natural effect*, is bad. Virtue is simply that which gives pleasure to the God; vice, that which gives him pain. Science accounts for the fact that the moral code is changeable, that it differs at different times and places, by the fact that the results of conduct—on which results the qualities of goodness and badness entirely depend, vary as circumstances vary. Conduct, therefore, which under certain conditions was of benefit to man as a social being, may by change of conditions come to have an opposite result; in other words, virtue and vice may change places. Theology in primitive times had no difficulty in accounting for changes in the moral code: the God had changed his mind. It was a matter of frequent experience to see the living chief change his desires and will, to hear him order to-day and counter-order to-morrow. It seemed but natural, then, that the invisible ghost-chief should similarly change his mind and orders. Abraham does not appear to have been in the least astonished at getting a command to do what he

would have expected to be punished for doing the day before. In the first chapters of Genesis, God is represented as looking at his work of creation, and being pleased—pronouncing it "good." A few chapters further on we read of him being in a state of disgust and despair at the way in which man, his greatest work, had turned out. The Lord "repented," and "it grieved him at his heart" that he had made man at all, and he determined to annihilate him. Unfortunately, however, for the success of this scheme one family had pleased him—so pleased him that in the work of annihilation he made an exception of it. As a consequence the race was preserved, and, as we are told in the after-history, man turned out as bad as before. To the early mind, then, no incongruity appeared in the idea of change of mind on the part of the God. It is otherwise with those in the present day who are capable of attaching the attributes of infinite knowledge and infinite wisdom to the God—attributes plainly inconsistent with change of mind. To such it is difficult to conceive of infinite wisdom maintaining at one time that "an eye for an eye, and a tooth for a tooth" is good as a principle of conduct, and maintaining at another time that it is bad (Lev. xxiv. 20; Matt. v. 38). This, however, is only one of those difficulties which, theologians think, are best "allowed quietly to float away."

The contrast between the scientific and the theological explanation of the origin of the different moral codes is very similar to that of the origin of the different languages on the earth. The scientific explanation of the origin and existence of different languages, as of different race-characteristics, physical and mental, is that they are the product of slow changes—subjective and objective. Languages grow as the organization of man grows. The contrast between the Bosjesman language, consisting of a few clicks and grunts, and the English is similar to the contrast between the mental organization of one of those savages and of Shakespeare. The English language has become what it is by gradual growth according to the nature of things under the law of invariable order. The theological explanation of the origin and existence of different languages is that the manlike God created the different languages in a moment of fright, caused by an attempt of some people to build a tower by which they might be able to get into heaven, his abode. "The Lord came down to see the city and the tower." The result was that the Lord considered it necessary to scatter the people by "confounding their language," so that they could "not understand one another's speech" (Gen. xi. 1-9). Similarly the theological account of the origin of the moral code is that it sprang into existence by the God expressing his desires and will as to the conduct of man. As his

desire and will have changed, so the moral code has changed. Whether the will of the God be declared in such a striking manner as when he wrote a code with his finger on two stones and delivered them on a mountain burning with fire, or whether it has been made known by some prophet or priest, or by some occult process in each man's mind, the moral code is simply the expression of this will.

The contrast, therefore, between the theological and the scientific theory of the origin and nature of the moral code is so great as to preclude the idea of any reconcilement. We have already been compelled to arrive at the same conclusion in comparing the principles of theology and science in regard to other branches of knowledge. When the human race was in its infancy it thought as a child and spoke as a child, but as it became more advanced it threw away its childish theories. No one would hesitate for a moment to accast away all the knowledge that science has given us in knowledge that it would be inconceivable folly for us to astronomy, mechanics, chemistry, anatomy, surgery, and go back to the theories and practices of primitive man. Yet men of great intelligence in regard to other matters try to persuade themselves and others that it is the highest wisdom for us to accept the theories of primitive man concerning the most important subject of all—the science of social conduct. Men who would

laugh to scorn the idea of exchanging our ocean steamers for canoes hollowed by flint flakes, each from a single tree, gravely ask us to "accept" the theories of the infants of our race about ethics as a "revelation from God."

CHAPTER IV.

THE SANCTION OF THE MORAL CODE.

BEFORE examining the means by which social conduct is guided, good conduct encouraged, and the bad prevented, it will be well to consider a preliminary question. The idea of the necessity of a sanction for the moral code naturally suggests to our mind that there is an inherent weakness in it, and that force of some description is necessary to ensure its observance. The question then arises, Why is this. Why is it necessary to adopt means to encourage good and prevent bad conduct? or, in other words, What is the origin of moral evil? The social conduct of man is of a mixed nature, tending in part to increase social co-operation, and in part to prevent it. What explanation can science give of this undoubted fact? It certainly seems strange that out of the same fountain should spring forth both sweet water and bitter; that at one time human conduct should be attractive and beneficial to society, at another disruptive and destructive.

The doctrine of evolution supplies the explanation of this seeming anomaly. Man has been and is slowly changing from a nature solitary and selfish to a nature social and sympathetic. Faculties which in the first state would be preservative are carried over into the second, where they are destructive. As the change proceeds, the social and sympathetic faculties gain strength by increased exercise, while the solitary and selfish dwindle from corresponding disuse. But the latter are still in existence. It has been said, "Scratch a Russian and you will find a Tartar;" the meaning being that in the Russian the sympathetic and social are but very superficial. So, indeed, it may be said in regard to even the most advanced nations, that man has but partially changed from the solitary to the social; and from the selfish, aye, even from the carnivorous, to the sympathetic and benevolent. We have our hospitals and orphanages, it is true, but the scenes of the battle-field are still familiar to us. The spectacle now and again of a strong man kicking the life out of a weak and helpless wife, and the daily records of our police-courts, are proofs sufficient that, though man has without doubt become to a great extent a social being, he has not ceased altogether to be a brute. In his mental nature man occupies at present a position analogous to that of an amphibious animal in physical evolution. Such an animal has both lungs to breathe

in air, and gills to breathe in water, and lives in both these elements. So man has faculties, some suitable only for the carnivorous, selfish, and solitary life, others only for the social and sympathetic. These are the facts which science finds to be explanatory of the existence of both moral good and moral evil, and of the necessity of some sanction for the moral code.

To the theologian, so far advanced as to conceive infinite goodness and power to be attributes of the manlike God, the existence of moral evil is an inscrutable mystery. If the God is infinitely good, in the human sense, he must desire that moral evil should not exist; and if he is infinitely powerful, he could make his will prevail. The theologian has often made the most desperate struggle to get off the horns of this dilemma, but always in vain. It has been argued that moral evil comes not from the good God, but from an evil spirit called the devil. But then there is no answer to the question, Why did the good God create the devil. Another attempt at explanation has been the theory that God having granted free will could not interfere with it even to prevent evil. But then again comes the unanswerable question, Why,—the effect that must follow being known, why was free will given. This, even granting that such a thing as free will exists, is fatal to the explanation. The fact is, that the existence of moral evil is, and must be,

to the theologian what he calls a mystery, that is, a contradiction in terms to some other theological theory.

We may now proceed to discuss the means by which the moral code is enforced. These means are divisible naturally into two classes—the subjective and the objective. By the subjective sanction is meant the forces controlling social conduct, that originate entirely in self. When the organization of a person is such that he shrinks from injuring another as he would from injuring himself, he carries within himself the means of ensuring obedience to the moral code. He is, as St. Paul says, "a law unto himself." If every individual in a society was of a perfectly sympathetic nature no other sanction would be required; no laws, in fact, would need to be formulated for the regulation of social conduct: the whole moral code would be contained in one short sentence, "Love your neighbour as yourself." * If every individual claimed the right to exercise all his functions so far only as was consistent with the equal right of all the other members, there would be no hindrance, no limit to social co-operation, and each would get his just share of the result. We are far yet from such a state of society. The old inherited nature of selfishness is still strong enough to make itself felt in all, and to prepon-

* This formula, used by Jesus Christ the Jewish reformer as an epitome of the moral code, was, we believe, so first used by the Chinese reformer, Confucius.

derate in many. This being so, an objective sanction becomes necessary. If within each self there is not that which is able to secure obedience to the moral code, then objective means must be found. If the conduct of any member is such as to make social co-operation difficult or impossible, the question at once arises, Shall the social organization be broken up and destroyed, or shall the destructive, unsocial conduct be prevented. "Two cannot walk together unless they are agreed." If the conduct of one gives pain to another, that other will shrink from the cause of pain, as a deer shrinks from a tiger. Supposing, then, the subjective sanction absent, evidence that pain is being inflicted on another will have either a stimulating influence to continue the hurtful conduct, or, at least, none to prevent it: hence it is evident, that either such conduct must be prevented by some objective force, or society must be destroyed. This objective force must be of such a nature as either to cause a change of conduct or to make the conduct impossible. To effect the first, the dominant desire in the actor, which caused the offensive conduct, must be replaced by another which will become the motive of other conduct. To make the offensive conduct impossible the actor may be constrained by physical means, such as imprisonment, or he may be put to death.

The objective sanction may be divided into two sec-

tions—the public and the private. The first consists of the means supplied by the co-operative strength of the whole society — public legislation, an army, police, judges, gaols, gallows, &c. The private means are supplied by individuals, or by sections of the general society, such as the family, the club, the mercantile firm, and other forms of social organization, the sum of which constitutes a national society,—just as the eye, the ear, the heart, &c., each a complete organization in itself, form in one connected sum the organization of the body. Whether the means to control the conduct be derived from the whole nation, from a section of the nation, or from an individual, they are of the same nature, and vary only in strength.

There are but two modes of controlling the conduct: (1) the motive and will as the invariable antecedents may be changed; or (2) the conduct may be controlled either for a time or permanently by physical force. When the nation aims at changing the motive of the conduct, it does so by attaching pain as a result, in expectation that the fear of that pain will prove stronger than the desire which caused the conduct; and, consequently, that, as every one must act from his strongest desire, the conduct will be avoided in future. Among the pains inflicted for this end are fines, imprisonment, rigid discipline, hard labour, flogging. The means of the private sanction differ from

these in detail but are exactly the same in principle; that is, they are founded on the law that conduct is the effect of the strongest desire. The object is, invariably, to replace, by a stronger desire, the desire that caused the offensive conduct. Among the private means of making pain one of the results of conduct that is offensive to others, is the exhibition of dissatisfaction, by look or speech, by ridicule or sarcasm. If by such means as this the object is not gained, and the offensive conduct continues, then either the society must be dissolved or the offending individual must be expelled. In the latter case his acquaintance is shunned; he is expelled from the club, partnership with him in the mercantile firm is dissolved. This latter means, in the private sanction, corresponds to hanging or penal servitude for life in the public.

Bad conduct and social co-operation cannot co-exist any more than the physical organization of the body can continue if poison be introduced. Either the dose of arsenic must be expelled or the body must die; or if the quantity of the poison be not sufficient to kill, yet the health and strength of the body are proportionally weakened. In a similar manner bad conduct weakens or kills a society. The results, again, do not depend on the size of the society any more than the chemical action of arsenic depends on the size of the body. The principles that govern a party of three, co-operating to play

a musical trio, are identical with those which govern a nation of thirty millions. Suppose one of the musical party plays out of tune or time, either that conduct must be changed or the concert is at an end. Four, again, join together to play a game of whist. If one insists upon revoking, that party or society is broken up. The millions of the nation, like the party of three or four, are but a number of individuals joined together for the purpose of co-operation. If that state is to continue, certain rules of conduct must be obeyed. The moral code is a collection of these rules; the sanction, the means used to enforce them.

It might be thought at first that the public sanction was by far the more important, and that the aid afforded by the private sanction was comparatively small. Judges, gaols, army, and police thrust themselves so conspicuously upon our notice that this opinion is apt to be formed. But, when we consider the matter, this is seen to be an error. The amount of conduct that is regulated by the private sanction is immensely greater than that regulated by the public. The daily and hourly conduct of every individual during life is influenced by the private sanction. The portion that requires the combined strength of the nation to control it, is a mere residuum. The persons that come before judges and magistrates form but an insignificant fraction of the nation. But every individual "lives,

moves, and has his being" under the influence of the opinions and feelings of those of his fellows with whom he comes into social contact.

We have now traced the origin of the moral code to the evolution of man from a solitary to a social nature; and, of a sanction to the fact that faculties which naturally belong to the solitary, still remain, more or less vigorous, in the social state. We have seen that the destructive, unsocial exercise of these must be restrained if society is to continue; and that hence arises the necessity for a moral code, as also for a sanction or means of rendering it efficient.

We may now proceed to inquire into the relative strength and efficiency of the different sanctions, public and private. When one thinks of the marvellous complexity of a civilized society, "the wheels within wheels," by which the functions of the social organism are exercised, the question forces itself upon the mind, How is such a machine kept in working order; How is it, in other words, that society continues to exist. What a contrast there is in the conditions of life between the individuals forming such a society—some whose difficulty it is to invent a new desire to be gratified, others so poor that their whole life is spent in a continual struggle for a miserable existence! How is it that all those who have nothing, do not make a rush and take from those who have? The answer is—

Because, if they did, the safety of private property, the right, indeed, of possessing it, would be at an end, the whole structure of society would crumble into dust, and primitive savagery would take its place. To sustain and preserve such a structure as modern civilized society, the sanction of the moral code, it is evident, must be of great strength.

We have now to consider the question of the efficiency of this sanction. A more important subject could not engage our attention. The imagination fails to picture to us the results which must inevitably follow a failure of the means by which social conduct is so controlled as to be preservative of society. The preservation of the Dutch people depends upon the strength of the dykes, which prevent the devastating flow of the ocean over their country. The efficiency of these dykes is the object of the vigilant and constant attention of the people. If a breach is made, it is instantly repaired; if allowed to continue, the rush of waters would soon become uncontrollable, and all the fruits of the labour of generations would be swept away. A land of beautiful gardens and fertile fields—a scene of peaceful plenty—would be replaced by an angry ocean and its barren waves. So would it be if the sanction of the moral code gave way, and proved unable to restrain the selfish and carnivorous instincts of human nature. It cannot be denied that civilization, the product of the

social and sympathetic instincts, is still threatened by the solitary and selfish. Society must therefore be vigilant in stopping at once any breach of the moral code—any breach in the barrier on which the safety of society depends. In examining into the efficiency of the sanction, there is one part of the inquiry that need not detain us long—the efficiency of the national application of physical strength. It is very evident that the co-operative strength of the whole nation must soon overpower that of any small minority of determined wrong-doers. If, again, we suppose the latter to constitute a considerable minority, approaching, say, to half the community, the case is simply one of the dissolution of the nation, as under such conditions no society could continue to exist. The efficiency of the public sanction in producing in the criminal a subjective sanction—that is, in changing his motives—is, at least, with those directly operated on, only very partial. This is shown by the numbers who find their way back to the gaols. It would seem that it was impossible in some that the desire to avoid punishment should for any length of time be stronger than the desire to act criminally. The latter appears by the constitution of their nature to be so strong that it is impossible to substitute a stronger by any fear of punishment. The other alternative in dealing with them, to evoke and cultivate the social faculties in the hope that the desire to exercise

these may become dominant—stronger that is than the desire to act unsocially—must depend for its success upon the innate character of the criminal. If the social and sympathetic faculties are entirely absent (as they seem to be in some), of course they cannot be cultivated any more than the faculty of distinguishing musical sounds can be cultivated in those who have been born without it. It is only of late years that the idea of trying this mode of changing the character of criminals has been suggested. The time, therefore, has been too short, and the experience too meagre, to enable us to judge what proportion of the criminals are of such a character as to render this mode of treatment successful. We need not, again, consider at any length that division of the private sanction which we named the subjective—that is, the sanction which consists in the natural character of the individual being such that the desires which rule his conduct lead him in the right path. Some there are whose nature is so thoroughly social and sympathetic that to injure another would be to them attended with pain, and consequently from such injury they necessarily shrink. In such natures the old, ancestral, selfish qualities seem to have died out, or to have become so weak as to ensure the efficiency of the subjective sanction. The number, however, of those who are "a law unto themselves," like that of those who have to be constrained by the united strength of the whole society, is but a very small fraction of the whole.

What we have to inquire into more particularly is the efficiency of the moral sanction over the daily conduct of the great majority—the neither extremely good nor extremely bad. So far indeed as these are by nature of a social disposition, they possess in themselves the subjective sanction. The desires which rule their conduct are such as tend to sociality. But they have also, in more or less strength, desires which, if allowed to become dominant, would be destructive of sociality. What are the means which are efficient enough to check these unsocial desires? To find an answer to this question, we must look back into the evolutional history of the race. The primitive man being nearly altogether selfish and solitary, requiring for his preservation little help from his fellows, had consequently little to fear in the loss of social co-operation. Gradually, however, as he became less solitary and more social, his preservation became more and more dependent upon the co-operation of his fellow-men, until, as in modern civilized nations, the individual is entirely dependent on the society. This fact, viz., the entire dependence of the modern social man upon the co-operative help of society, though one seldom thought of, is a very important one, and easily recognized to be such on a little consideration. During the social and civil war in Ireland in 1880 and 1881, Mr. Parnell, one of the leaders, gave the following advice in

a speech to the people: "Now, what are you to do to a tenant who bids for a farm from which his neighbour has been evicted? (Various shouts in answer to the question, among them, 'Kill him!' 'Shoot him!') Now, I think I heard somebody say, 'Shoot him!' but I wish to point out to you a very much better way, a more Christian and a more charitable way, which would give the lost sinner an opportunity of repenting. When a man takes a farm from which another has been evicted, you must show him on the roadside when you meet him; you must show him in the streets of the town; you must show him at the shop-counter; you must show him in the fair and in the market-place; and even in the house of worship, by leaving him severely alone, by putting him into a moral Coventry, by isolating him from the rest of his kind as if he was a leper of old; you must show him your detestation of the crime he has committed, and, you may depend upon it, if the population of a county in Ireland carry out this doctrine, that there will be no man so full of avarice as to dare the public opinion of all right-thinking men within the country, and to transgress your unwritten code of laws." Mr. Parnell was right. This alternative to shooting was quite as certain a mode of destruction, though it took a little more time.

No individual in modern society could exist deprived of the co-operation of society. Let us consider

the amount of co-operative help one takes advantage of by using a pin. Before that pin became available, shafts had to be sunk into the bowels of the earth, and the labour of mining carried on to procure the crude ore; this unrefined metal had to be passed through all the processes of purification; roads had to be made; large buildings had to be erected; the most elaborate machinery had to be constructed; many workmen had to contribute their skill; shopkeepers had to stand behind their counters. All these, and many more forms of co-operative work, were necessary before the use of a pin became possible. But none of these forms of labour would be possible had not capital been saved by many generations, and left to us in the form of the products of the labour of our fathers. Each generation inherits the accumulations of all those that lived before it. This mighty inheritance is often imagined by unreflecting people to be enjoyed only by the rich. But it is easy to see that every beggar who uses a pin to patch his ragged clothes enjoys the results of incalculable labour not his own.

During the ages of evolution as the nature of man grew from the solitary into the social, his social dependence constantly increased. With this increase of social dependence increased his fear of the loss of social help, until the fear became instinctive. No more general and pronounced instinct exists in man than that by

which he detects and shrinks from any appearance of failure in the social bands between him and his fellows. A change in the eye, so minute as to be inexpressible in language, when the result of good or bad will, is immediately detected. Nothing is more valued than the good will, and nothing more feared than the ill will, of those with whom we are in social contact. In this dread of the ill will of our fellows we find the answer to the question, What is the principal and most efficient sanction of the moral code. In fact, this instinctive shrinking from the loss of friendly social relations with others, becomes identified with the dread of attack upon our means of self-preservation. Just as an organism passing from the nature of an animal breathing in water to that of an animal breathing in air becomes more and more sensitive to the loss of air, so does man, as he changes from a solitary to a social being, become more and more sensitive to any sign of the loss of social co-operation. Perhaps the fact that few ever think of social help as a necessity or a means of self-preservation, or reason about it as such, may be thought to be a proof that it therefore could not form a motive to conduct. The answer to this is evident. The portion of our conduct that is mediately caused by conscious thinking is a very small fraction of the whole. By far the greater portion is impulsive and automatic. Not one in a million knows, or has ever thought of, the cause of the necessity of

breathing, or how it serves as a means of self-preservation. Yet this does not prevent us from being most sensitive to any obstruction in the passage of air to the lungs. Similarly, though we do not think or reason about the necessity of society as a means of self-preservation, we act from the instinct which has been evolved by the fact that it is so. In practical daily life the strongest objective force regulating social conduct is the manifestation of the good or ill will of our fellows. If the organization of society is to be preserved, certain modes of conduct of the units of which it is composed must be observed, or, in other words, the sanction of the moral code must be efficient. In like manner, if the organism of the body is to be preserved, the action of its parts must be of a certain kind. When the action is not of this kind, but such as tends to the destruction of the body, the action is accompanied by the feeling of pain. So when conduct tends to the destruction of society, it causes pain, and from this we shrink, as a symptom of danger to our power of self-preservation, as in fact it is. When, therefore, our conduct tends to deprive us of the good will and social help of our fellows, we shrink from it, and so are prevented from repeating it. This instinctive dread, then, of the loss of social help, a dread of which the manifestation of repugnance in our fellows is the objective cause, forms the efficient sanction to the moral code

in the greater part of social conduct. As we have already said, the bad conduct which it fails to prevent, and which has to be dealt with by the public sanction, forms but a small fraction of the whole.

The following is a summary of the means by which the moral code is preserved. 1. The sanction of the united strength of the whole society exercised by public officers. 2. The subjective sanction, consisting of the sympathetic and social faculties, which cause the person, of himself, to refrain from conduct injurious to others. 3. The exhibition of disapprobation by those immediately affected, which by producing fear of the loss of social help acts as a deterrent against the repetition of the conduct.

We will now examine and contrast the efficiency of the theological sanction of the moral code. As the theological moral code consists of the expressed desires and will of a manlike God, so its sanction is found in his feelings of love or anger. Those who please the God by doing what he wishes are rewarded, and those who anger him by not doing what he wishes are punished. In the early days of theology the divine rewards and punishments were supposed to be administered during this life and by natural means. Our illustrations of these facts will be taken from the Jewish and Christian theology with which we are more familiar. But, as we have already remarked, all theologies though

differing in details are in essence the same. In all, the conception of God is an exaggerated image of man. God is said to act and feel and think as the people at the time would have acted, felt, and thought. He was simply the invisible chief or king of the tribe or nation. He, like the visible king, was extremely jealous, and was most vigilant to detect any disloyalty or disobedience. As we have seen, disobedience to a command was vice, and obedience virtue. The nature of the command was irrelevant; it might be *apparently* silly or wise, good or wicked—man had simply to obey. As the nature of the theological moral code is determined entirely by the personal wishes of the God, so does its sanction consist of the rewards or punishments which it is his pleasure to dispense. In primitive times these rewards and punishments were supposed to be awarded always in this life, and often very promptly. For example, when Elisha, a prophet of the Lord, was going to Bethel, some "little children" made a personal and rude remark about his baldness. The prophet "cursed them in the name of the Lord." "And there came forth two she bears out of the wood, and tare forty and two children of them" (2 Kings ii. 23, 24). Again, a prophet having been sent by the Lord on an errand, and commanded not to eat bread or drink water in a certain place on his way home, was met by another prophet. This prophet told the other that an angel of

the Lord had told him to bring the first prophet home with him to eat bread and drink water. This was untrue; but the other, believing it, accepted the invitation. When the two sat at table "the word of the Lord came unto the prophet that had brought him back." This word, one might expect, would inform the deceiver that the Lord would punish *him*. On the contrary, it was to the effect that the Lord would punish, not the deceiver, but the deceived. Accordingly when the latter was on his road home "a lion met him by the way, and slew him" (1 Kings xiii.). In a similar manner, when Jonah, trying to evade an order of the Lord to go to Nineveh, took a passage in a ship going to Tarshish. "The Lord sent out a great wind into the sea." This created a great panic among the crew, and they having no doubt that the storm was sent for a moral purpose, viz., the punishment of some wrong-doer, they cast lots to see who he was. The lot falling upon Jonah, they asked him what they were to do. "And he said unto them, Take me up, and cast me forth into the sea; so shall the sea be calm unto you: for I know that for my sake this great tempest is upon you." Jonah having been pitched over, the sea became calm at once. However, the Lord, not wishing to kill Jonah, "had prepared a great fish to swallow" him. And after three days and three nights Jonah prayed to the Lord. "And the Lord spake unto the fish, and it vomited out Jonah

upon the dry land" (Jonah i. and ii.). On one occasion fifty thousand and seventy people were smitten by the Lord because some of them had looked into a box which he had got made for his own special purposes (Sam. vi. 19). Again he sent a famine for three successive years on a whole people, and on David inquiring the cause of it, the Lord told him it was on account of "Saul and for his bloody house, because he slew the Gibeonites." Seven sons of the dead Saul were accordingly given up to the Gibeonites, who "hanged them in the hill before the Lord." "And after that God was intreated for the land" (2 Sam. xxi.). Ananias and his wife Sapphira were struck dead for stating what was false (—though the old prophet was not) (Acts v.). Herod "was eaten of worms," because when the people said he had the voice of a God, Herod, not declining the compliment, "gave not God the glory" (Acts xii. 23). God is represented as a lion and as a leopard: "As a leopard by the way will I observe them: I will meet them as a bear that is bereaved of her whelps, and will rend the caul of their heart, and there will I devour them like a lion, the wild beast shall tear them" (Hosea xiii. 7, 8). "The Lord Jesus shall be revealed from heaven with his mighty angels, in flaming fire taking vengeance on them that know not God, and that obey not the gospel of our Lord Jesus Christ" (2 Thess. i. 7, 8). "For our God is a consuming fire" (Heb.

xii. 29). The punishment of the wicked is to be not only the most excruciating conceivable by the imagination, but everlasting. The following are some of the details of it as given in a little tract, written *permissu superiorum* for young children by an ecclesiastic of most appropriate name—the Rev. J. Furniss, "A Bed of Fire": "The sinner lies chained down on a bed of red-hot, blazing fire! When a man, sick of fire, is lying on even a soft bed, it is pleasant sometimes to turn round. If the sick man lies on the same side for a long time, the skin comes off, the flesh gets raw. How will it be when the body has been lying on the same side on the scorching, broiling fire for a hundred millions of years? Now look at that body lying on the bed of fire. All the body is salted with fire. The fire burns through every bone and every muscle. Every nerve is trembling and quivering with the sharp fire. The fire rages inside the skull, it shoots out through the eyes, it drops out through the ears, it roars in the throat as it roars up a chimney. So will mortal sin be punished. Yet there are people in their senses who commit mortal sin!" *

"Amos iv., 'The days shall come when they shall lift you up on pikes, and what remains of you in boiling pots.' Look into this little prison. In the middle of it there is a boy, a young man. He is silent; despair

* And what is more wonderful, there are people who ask us to *love* a God who is the author of the horrors described.

is on him. He stands straight up. His eyes are burning like two burning coals. Two long flames come out of his ears. His breathing is difficult. Sometimes he opens his mouth, and breath of blazing fire rolls out of it. But listen! There is a sound just like that of a kettle boiling. Is it really a kettle which is boiling? No; then what is it? Hear what it is. The blood is boiling in the scalded veins of that boy. The brain is boiling and bubbling in his head. The marrow is boiling in his bones. Ask him, put the question to him, Why is he thus tormented. His answer is, that when he was alive his blood boiled to do very wicked things, and he did them, and it was for that he went to dancing-houses, public-houses, and theatres."

"Psalm xx., 'Thou shalt make him as an oven of fire in the time of Thy anger.' You are going to see again the child about which you read in 'The Terrible Judgment,' that it was condemned to hell. See! it is a pitiful sight. The little child is in this red-hot oven. Hear how it screams to come out! See how it turns and twists itself about in the fire! It beats its head against the roof of the oven. It stamps its little feet on the floor of the oven. You can see on the face of this little child what you see on the face of all in hell—despair, desperate and horrible!"

These examples of the deterrent sanction of the theological moral code might be multiplied to any extent.

But the few given are enough for our purpose. The principle on which their efficiency depends is the creating in the mind such a terror of an invisible manlike God, that the desire to avoid his vengeance shall always be dominant over every other desire. It must be allowed, that if faith sufficiently strong could be always present in the mind, there could be no doubt as to the efficiency of this theological sanction. But the want of such faith is the great difficulty. Even in the minds of primitive men, when faith in the existence of a manlike God who personally interfered in the affairs of this world was at its strongest, the potency of the unseen was strikingly inferior to that of the seen. The number and magnitude of the miraculous interferences of the Jewish God were marvellous, but not more so than the transience and insignificance of their effects upon the conduct of the people. Famine, plague, pestilence, and war were used times innumerable, and once the whole human race except one family were drowned—all to compel the people to comply with the wishes of their God. Yet a great part of their sacred books is taken up with his angry threats and curses, and the most pitiful and despairing complaints of their inveterate wickedness.

If the deterrent sanction was apparently a failure in preventing wickedness, so was the attempt to promote good conduct by rewards. As we have seen, the theological threats are of the most exaggerated description. So also

are the promises. In this world those who obey and please the God are to have riches, long life, numerous children, strength to conquer their enemies, and to annihilate them by the slaughter of men, women, and children. But all these rewards appear to have had very little effect in producing good conduct. Abraham, Jacob, and David, the three greatest favourites of their God, and to whom were given the largest favours, showed by their conduct a most depraved disposition. Apparently they had but one good quality, viz., willingness to obey and flatter the God. But from the theological point of view this is the sum and substance of morality. No one except a person of the most degraded character could act as Abraham is said to have acted to his wife, his concubine, and his son. Yet he is held up as an example of goodness. Jacob was the most contemptible deceiver. Yet not only in spite of his deceit, but by means of it, he secures a blessing from his God. His brother Esau, who seems to have been an honourable and generous man, is forsaken. David appears to have been born a natural criminal. Having formed a band of all the desperadoes in the country, he began life as a brigand chief. During life he committed the greatest crimes, and on his death-bed requested his son to murder a man whom he was in honour bound to protect. Yet this criminal was "the man after God's own heart." Blessings were showered upon him. When he offended his God he was

not punished personally, but his innocent subjects were slaughtered. All the favours bestowed upon him, however, did not make his character a moral one. Again, the blessings bestowed on the nation appear to have been equally insufficient in promoting good conduct. The sea was divided for their safe passage, and closed again to drown their enemies. Food was showered down on them. From rocks in the dry desert were made to spring forth fountains. The sun and moon were made to stand still for a whole day to give them light to kill their enemies. During a battle the God interfered personally, and pelted their enemies with stones. The inhabitants of a land flowing with milk and honey were slaughtered without mercy or pity even for the children, and the country given to them. But by the history we are told that all these marks of favour bestowed by their God were quite as inefficient as the punishments, in promoting morality.

Taking, then, the history esteemed sacred and true by theologians, the divine sanction of punishment and blessing was a failure. It had been tried, the history says, from the creation until the coming of Christ, who was supposed to be an incarnation of the God. Him they crucified. The nation then, upon whom the theological sanction of morals had been tried for so long, was at last cast off as incorrigible.

For now nearly two thousand years the theology which

failed with the Jews as a sanction of morality has been tried with other nations.* What has been the amount of success of this latter trial? Have the altered forms of Christianity given it more efficacy as a sanction of morality? There is no doubt that the great majority are quite convinced that all the advance in civilization which has been made in Europe since the beginning of Christianity is to be attributed to the Christian theology. To doubt this would sound to them as ridiculous as to doubt one of the mathematical axioms. That all the advance which man has made in morality during this time is a product of Christianity, and that if faith in it was lost the people would lapse into savagery, are held to be self-evident propositions. Before examining what amount of verification this opinion receives from facts, it will be necessary to use one of the scientific methods, viz., to define exactly the meaning of a word—the word *Christianity*. Of all the number who assert that Christianity has been, if not the only, certainly the principal cause of the advance in civilization, very few have ever translated the word Christianity into clear and definite thought in their own minds. If they did so, it would be found that there were great diversities in the meanings attached to the word. In fact, a great part of the history of the

* It is not exactly correct to say that the Jewish and the Christian theologies are identical. The latter is in some respects different, but in essential principles they are, as all theologies are, the same.

Christian theological era is a dismal and melancholy narrative of savage and sanguinary wars caused by differences of opinion upon this subject among so-called Christian peoples. With these differences we need not trouble ourselves; our present object being to inquire into the efficiency of the theological sanction of morality, we will consider Christianity only as a theology. We therefore define Christianity as a theory of the nature of God. What amount of truth there may be in the moral maxims attributed to Christ, whether these maxims were original or copied, are irrelevant to our subject. Christianity then, as a theology, differs but in detail from the Jewish, and, indeed, all other theologies. God in his nature is supposed to be knowable, and this nature is pronounced to be manlike. The mode in which Christianity differs in detail from the Jewish theology is chiefly this. Christianity supposes that the manlike God of the Jews appeared on this earth as an infant, lived as a human being for about thirty years, was killed, rose from his grave, and ascended into the sky, promising to come again in like manner. On this second visit he is to sit on a throne as the judge of all the earth. Before this throne the whole human race is to stand. Christ the judge is to divide it into two parts—one, on his right hand, consisting of those with whom he is pleased, and one, on his left, consisting of those with whom he is angry. The people on the left are to be

sent into hell to suffer everlasting torment; those on the right are to remain with the Lord, and to enjoy for ever a new heaven and a new earth expressly created for them in place of the present universe, which is to be entirely burnt up. Such is an outline of the Christian theology. The principal difference between it and the Jewish theology, of which it is an offshoot, consists in its postponing the complete reward and punishment for good and bad conduct to an indefinite future, whilst the Jewish sanction was for the most part applicable in the present life. Christ himself is reported to have expressly warned his hearers on one occasion against giving objective events a moral significance, though many imagine even in the present day that they see in such events "the finger of God." When towers of Siloam fall and people are killed, the conclusion is drawn that the God has personally interfered for the punishment of evil conduct. But still the great characteristic of the Christian sanction is that it will come into full operation in some indefinite future. The question to which we have to seek an answer is, What degree of efficiency has this theology as a sanction of the moral code. On the supposition that the mind was always possessed with perfect faith in these theological dogmas, one must allow that believers would have the strongest motive to follow conduct pleasing to the God, and to refrain from that which would anger

him. The facts of history, however, and our own observation negative the conclusion that the sanction of theology has been or is so efficient as the great majority suppose. During what are called the Middle Ages, when faith in theology was at its strongest, morality, in the scientific sense, was almost at its lowest, or, in other words, social co-operation existed but in a very imperfect condition. War and violence were predominant. Conduct was such as allowed of a state of military co-operation, but it was almost prohibitory of the industrial. Acts of what theologians call piety were frequent and general—acts, that is, supposed to be personally pleasing to the God, such as praying to and praising him, suffering self-inflicted pain and annoyance of many kinds, giving money and power to men supposed to be his ministers, building gorgeous and costly temples in his honour. These and similar acts which from the theological point of view were good were no doubt very prevalent, but from a scientific point of view they have no element of moral goodness. Then, under the influence of theology and justified by deduction from its dogmas, conduct was followed which theologians thought good, viz., persecution even unto death of those esteemed to be enemies of the God—so-called heretics.* In the

* The reasoning by which this conduct was justified was unanswerable, if the assumptions of the theologians were granted. If it was true that a heretic was the cause of inflicting

past, then, facts do not verify the conclusion that theology has furnished an efficient sanction of the moral code. Whether in the present it is so every one must judge from his own observation. The prevalence of such sayings as "The nearer the church the further from heaven," indicate that the theologically-minded people are found by many not to be conspicuous for good social conduct. The nations in which faith in theology remains the strongest at the present day are certainly not in the front rank of civilization, nor do they furnish striking examples of obedience to the moral code. The southern Italians, the Spaniards, and the Irish are pre-eminently theological, but are not so conspicuous for their good social qualities. High in the scale of piety, they are low in that of morality. The same holds good if we compare the Eastern with the Western nations. Obedience to the moral code is not necessarily found where faith in theology is strongest, as we might expect it to be if the efficiency of the theological sanction of morals was so great as is generally supposed.

The following considerations go a long way to account for this fact:—

1. What is distant does not make so vivid an im-

eternal pain upon his neighbours as well as upon himself, the fact would justify any means necessary to prevent such a result. From the scientific point of view, however, the persecution of heretics is most immoral, and consequently as the influence of science increases persecution for heresy diminishes.

pression as what is near. Hearing of the death of thousands by an earthquake in a distant country does not produce so much effect upon us as the death of a pet canary in our parlour. So the influence of the prospect of a heaven or a hell to be enjoyed or suffered in a distant and indefinite future is not so great as the pains and pleasures of daily life. Theological writers have been unconsciously moved by this weakness, to endeavour by exaggeration of description to make up for the dimness of distance. Hence we have such writing as we have quoted from the Bible, and from the Rev. J. Furniss's book. Strong language and a weak cause are often found together. There are, however, two occasions when theology has great influence upon conduct, viz., the time of fanatical excitement and the time of death. Happily for society the outbursts of fanaticism are in their nature transient, and the conduct of a person whose life is practically at an end, can be of little concern to society. But the conduct of men during the time when their theological views are calmest and clearest shows us that in the ordinary daily life of the great majority, the influence of theology is comparatively small. Theologians themselves show that they are conscious of this fact. In their worship of the God they acknowledge that they are "miserable sinners" who have followed continually the devices and desires of their own hearts, and have forgotten him. And as this

confession is constantly repeated, it shows that this failure of theological influence is chronic and incurable. Theoretically it is felt that our relation to the invisible, manlike being who is in all his attributes infinite, is immeasurably more important than our relation to our fellow-men; but the constant realization of our relation to the latter in actual experience more than balances the theoretical and unverifiable statements of our relation to the former.

2. All theologies contain devices and plans by which the supposed anger of the God can be turned aside, and his forgiveness obtained. There is no limit up to the last moment of life to the amount of forgiveness obtainable. It is a frequent occurrence for a murderer to state on the gallows that he is perfectly certain of having been forgiven, and of being received into the favour of God for ever. By the plans of salvation so provided, a lifetime of crime is obliterated and an eternity of bliss secured. It is quite evident how this is calculated to lessen the strength of the theological sanction. A whole life may be spent in the most immoral ways, and yet, by the appointed means, the angry God is instantly changed into a God of infinite love. No doubt death may come so suddenly that there will be no time to get "fortified by the rites of the Church;" but the chances are largely against this.

3. The theological view of the nature of moral law

has a tendency to increase the temptation to evil conduct. As we have already seen, the essence of virtue is obedience to the command of God. It may be, therefore, that the *natural* results of forbidden conduct would be good and pleasant. The first case of a breach of the moral law as stated in our own theology is an example of this. In the nature of things there was every reason to eat the apple: the supposed command was the sole obstacle. It is, therefore, a very common and natural error to imagine that a life of immorality would be the more pleasant so far as this world is concerned. That the balance of good would lean heavily on the side of much that is called sin if its natural results alone were put into the scale. The supposed anger of God is what alone turns the beam to the other side. If our life ended with the grave, the theologically good man would be of all men most miserable. This view, so entirely false if science is true, has a very prejudicial effect, especially upon the young.

4. Theology has a marked tendency to concentrate the attention upon conduct which affects, or is supposed to affect, the God alone, and which is useless to our fellow-creatures, viz., praying to and praising him, denying ourselves some good in hopes that he will be pleased by our discomfort; accepting a revelation and clinging to a creed, and, to enable us to do this, flinging away our reason, and assenting to the most palpable nonsense.

This surrender of reason, theology considers the greatest of all virtues—so great a virtue that our eternal happiness is said to depend upon it. Whatever else a man may lack, if he has faith he will be saved; the greatest sin, on the other hand, being what theologians call *free thought*. Experience proves that it is on these and such-like things that the theological mind tends to concentrate itself. Yet all this pious conduct is not only socially useless, but some of it most injurious.

We have now given some reasons for doubting that theology acts as a moral sanction with anything like the efficiency that is generally thought. Only in a few cases has it any great influence on conduct; and even in these the conduct is for the most part not moral in the scientific sense, that is to say, the conduct is not social conduct; it affects no other person than the actor and the God. Where, again, social good conduct does accompany theological belief, it is impossible to say how much has been caused by the theological belief and how much by natural sympathy of character. We have reason to believe, therefore, that the general opinion of the efficiency of the theological sanction is far from correct.

On the other hand, in the present day, theology has an influence which, instead of sustaining and strengthening the ascendency of the moral code, cuts at its very root. If there be one virtue more important

and fundamental than any other, it is *truthfulness*. The greatest love and reverence for truth, and the most sensitive shrinking from the least contact with falsehood, are characteristics of the most moral. On the other hand, a disregard for truth, and a tendency to quibble, deceive, and lie, are marks of a low moral nature. This great, if not greatest of all virtues, truthfulness, theology has a distinct tendency to weaken. This tendency is the growth of modern times. When theology as "a theory of things" had the ground all to itself, when faith in its dogmas was undoubting and universal, theology and truthfulness were not inconsistent. One cannot read the letters of such a man as St. Paul, a theologian in a theological age, without seeing at once that he was truthful. Whatever we may think of some of the theories, we cannot doubt the truthfulness of the man. But, in the present day, go into a mixed society, and you find the theologically-minded certainly not conspicuous for truthfulness. Their look and their manner do not impress you with the idea that openness, honesty, and veracity are in them pronounced characteristics. The reason of this it is easy to understand. Theology, ever since science became her rival, and threatened to supersede her, has felt the necessity of defending herself. How was she to do so? The attacks of science consisted simply in the discovery of truths which were verifiable by evidence. These truths, in many instances,

contradicted the theories and assertions of theology. Either, then, the revelations that theology had "accepted" and the creeds that she had "clung to" must, if truth is to be preserved, be cast away, or science must be proved false. The latter was impossible, and the former too painful; the only other course open was the sacrifice of truthfulness. This sacrifice of truthfulness, though very real, is for the most part unconscious on the part of those imbued with the theological spirit. It is truly marvellous what a power a wish exercises over thought. The reading of books in defence of the old revelations against the attacks of the discoveries of science is no pleasant reading. The attempts at direct defence of errors, and where direct defence is plainly impossible the attempts at *reconcilement* of the new truths with the old errors, are repulsive to an open, honest, truth-loving mind. On the part of theology there is therefore in modern days, when a transition is taking place from the principles of theology to the principles of science, a distinct tendency to weaken instead of to strengthen veracity — one of the most essential virtues in the moral code. This, in a scientific age, must be the result of "accepting revelations," "clinging to creeds," and "loving finality in belief." The whole spirit and all the methods of science have exactly the opposite tendency. Truth, and truth alone, is the object of all her love, the reward of all her

labour, and the goal of all her ambition. Falsehood and error are to her the greatest of enemies, and from them she shrinks with instinctive fear.

There is another weakness in the theological sanction of morals which the rise of science has created, and which she is destined to increase as time goes on, viz., the liability of the mind towards doubt and disbelief in the fundamental hypothesis of theology. The moral code—as theology puts it—rests entirely on the assumption that God is a manlike being; and its only sanction is the expectation that this God will reward those who by good conduct please him, and punish those who displease him by bad. It is evident that every shade of doubt that passes over the theological mind as to the truth of the theological dogmas, must diminish the efficacy of such a sanction, and that total disbelief must entirely destroy it. Those brought up in the belief that the foundation of the moral code is the existence of a manlike God, and that its only sanction is his pleasure and anger, if this belief be once lost, are left without any motive for choosing good conduct and avoiding bad. The nature of things of course in time corrects this error. But how many young people are miserably wrecked before they are aware of having left the safe and true course of conduct! Nature is a stern and relentless teacher; those who come into collision with her laws are ground

into powder. The lesson is taught that the theological idea of the possibility of breaking the laws of the universe is a terribly false one. In how many instances does this teaching—that we may act and escape the natural consequences—involve the individual who accepts it in destruction!

> "The moving finger writes, and, having writ,
> Moves on. Nor all your piety and wit
> Can lure it back to cancel half a line,
> Nor all your tears wipe out a word of it."

Knowing, then, this danger of losing faith in the dogmas of theology, we need not wonder that the minds of many are kept in continual dread lest those under their care should come into contact with the light of science. But every day it becomes more difficult to avoid the danger. Some, whose minds tend to take a pessimistic view, are persuaded that the rapid increase in the discoveries of science makes it probable that in the near future we shall be overtaken by a great moral catastrophe. The great mass of the people will suddenly become conscious of the fact that theology has no foundation but in the imagination; and that the effect of this will be that the moral code, thus left without any sanction, will with the dogmas of theology become a thing of the past. The necessary consequence of course must be that society will be dissolved. Every man's hand will be against his fellow. Although it cannot be denied that

in individual cases there is real danger in making the moral code to rest entirely upon a theological basis, yet science supplies some adequate reasons for not accepting the anticipations of the pessimists. All the operations of evolution are very slow. The moral code is the growth of ages, and is the result of the growth of man into the social state. For man to revert back into the unsocial, selfish, unsympathetic, and solitary nature suddenly, would be as impossible as it was for him to pass suddenly from the latter to the social and sympathetic. But so long as man remains a social and sympathetic being, he must live in such a manner as makes society possible, and the moral code is nothing but the rules of conduct necessary for this end. Even if we granted that the loss of faith in theology would be necessarily followed by the discrediting of the moral code, the doctrine of evolution would forbid us to anticipate that the theological mind could be suddenly changed any more than that the colour of the skin of a Nubian could be suddenly changed into that of a European. The changes of tone and inclination of mind are sudden only in appearance, not in reality. The appearance of suddenness is caused by our ignorance of the preceding links of cause and effect. The change from theology to science like all evolutionary changes must be slow. So slowly indeed is the change taking place that to observe it we must make comparison

of periods separated by some interval of time. While, then, the fears of the pessimists are not supported by facts, it is certainly true that in the present age there is real danger in teaching the theological doctrine that the only sanction of the moral code is faith in the existence of a manlike God. This being an unverifiable hypothesis, and science destroying the traditional props which support it, we are justified in asserting that the efficiency of the theological sanction of the moral code, small as it at present is, is constantly becoming less and less.

We may now summarize the contrast between the scientific and the theological sanction to the moral code. The scientific sanction rests on the nature of things. In man has been evolved in some degree a sympathetic nature by which the pain and injury of others becomes self-pain and self-injury. This sympathetic nature is the subjective sanction. Secondly, living in society, a condition of life which to a sympathetic nature becomes a necessity, he is continually surrounded by the influence of his fellows. Whenever his conduct is painful or injurious to these, he finds it resented. Whenever it is beneficial he finds it encouraged. This constant, ever-present influence of the many upon the individual constitutes the objective sanction. The theological subjective sanction consists in the assumed influence of an assumed manlike God

upon the thoughts and feelings of man, an influence by which man is guided in his conduct. The objective sanction consists partly in the anger and vengeance of the assumed manlike God against those who disobey his commands, and partly in favours and rewards to those who by obedience please him. This sanction not being applicable during life, its efficacy depends entirely upon faith as to the indefinite future. The scientific sanction is verifiable by experience, the theological is not. The scientific is strengthened by every increase of knowledge; the theological is thereby weakened. Hence the efficacy of the one is destined to increase; of the other, to diminish. In the present age, the theological part of Christianity is being gradually less and less insisted upon, while its moral part, which can be supported by science, is being more and more depended upon as its essential and permanent element. Theologians as their minds become influenced by the scientific spirit, consciously or unconsciously, rest the defence of their system upon the moral side, and allow the theological with all its "difficulties" "quietly to float away." They address the conscience with greater confidence than the intelligence.

It cannot be denied that this revolution of thought is accompanied with pain, especially to those in whose minds sentiment is strong. All who have passed through the change can testify to this pain, by experience. The

fear of the greater moral pain of shutting their eyes to the truth, and so doing violence to conscience, alone enabled them to endure the laceration of feeling experienced in parting with an "accepted revelation" and letting go the grasp of a creed that had been "clung to" as we cling to the gift received in our childhood from a mother. How little some theologians think of this when they hurl their anathemas against those whose faith in theology has passed away, withered and burnt by the rays of the sun of knowledge! To these anathemas we would only reply, in the spirit of the beautiful prayer attributed to Christ: "We forgive you, for you know not what you do." But if the pain of change is necessarily great, the reward of truthfulness is greater. To be free from all the artificial difficulties and mysteries which are generated by theology, to be no longer compelled to try to force, not only our intelligence, but our conscience to "accept" the existence of a God such as is imagined in the ancient revelations, is an unspeakable relief. This "peace of mind which passeth all understanding" is a recompense full and overflowing into the hearts of those who have had the courage and conscience to struggle from darkness into light.

We have now arrived at the end of our task. To the best of our skill and knowledge we have given a *sketch* of what we conceive to be the main principles which dominate modern thought on science, theology, and ethics.

But before concluding it will perhaps be well to add a few words on a question that is not unlikely to arise in the mind of a reader. Granting the future triumph of science and the future decay of theology, does this involve the necessity of man being compelled to live a life unwarmed by sentiment,—a life without other motive for conduct than escape from the evil, and enjoyment of the pleasure, possible in the facts that at each moment surround him? Can he no longer have, amid the changing and fleeting experiences of the day, any star above him, fixed and constant, that may serve as a guide to some certain goal towards which he can feel it to be his highest duty ever to direct his steps? The first reply to this inquiry must be that, whether the results of truth be apparently pleasant or apparently painful, it must always be our duty as well as our best interest to accept them loyally and without hesitation. Again, though theology must disappear before the light of science, it does not necessarily follow that religion likewise must so disappear. We are warned by an ancient proverb of the danger of putting "new wine into old bottles;" we have already found it necessary to mark the difference in meaning of the word *law* as it is employed in science and in common use. In the latter, it always carries with it the idea of personality; in science, never. So it is with the word *religion*. As generally used, it means—the worship of, and devotion

to, God *as a person*. In this sense science can have nothing to do with religion. As we have seen, science has proved that a knowledge of the nature of God is beyond the capability of the human mind. She has shown that we are confined to a mere spot on the shore, as it were, of the great ocean of existence, and that theories of what exists "in the fountain of the great deep," serve but to render turbid the waters at the spot and along that shore to which we are confined. But accepting as a definition of the word *religion*—"The obligation or sense of duty which rests on the minds of men arising from the felt relation in which they stand to some superior Power," it becomes possible for science to have a religion. Science has taught us that of a beginning in the universe, so far as the mental eye of man can penetrate, there appears no sign. To our vision there has been, is, and ever will be, a ceaseless changing of facts and a perpetual rearranging of their relations. The first grand triumph of science was to perceive that amid this infinite movement exists eternal, invariable order. Thus, though the forms of force in its manifestations through mind and matter, self and not-self, be infinite in variety and number, all our present knowledge leads to the conviction that there exists but one Power, the nature of which is to us inconceivable. In our own day, again, science has made another great contribution to our knowledge of the universe—

perhaps the greatest she has ever made—in the discovery of evolution. She has discovered that in the ocean of existence not only does every ripple upon its surface move with invariable order, but that there are tides and currents that rise and fall and have a determined set. These currents are so slow that their progress is observable only when long periods of time are brought into view; but the directions are marked, and have in some degree been traced. Leaving aside the contemplation of the evolution of the material worlds of our solar system from a fiery vapour to their present state, let us fix our attention upon the current of evolution with which we are more immediately concerned, viz., the evolution of the human race. Each individual, beginning as a speck of shapeless matter and growing on to complete manhood, but rehearses in miniature the evolutionary history of his race. Every step in this progress was, looked at by itself, a mere ripple on the ocean of existence—the effect of the one preceding, the cause of the next to follow; but, at the same time, the current of which it formed a part moved on. Neither the beginning nor the end of this current can we know, but we can discover enough to see its set or direction. We have been passing from the simple to the complex in material organization, and in all the manifestations of mind. If the history of this development could be fully written it would be seen to have consisted of a

"continuous adjustment of the internal relations of each individual to the external relations." On the success of this adjustment has always depended life and happiness. In other words, the well-being in the highest sense of every individual depends, and always has depended, upon his keeping within the current of evolution in which he exists, and to which he is related. Here, then, it appears, we have all the materials for a true or scientific religion. As Bishop Butler says, "It is manifest that nothing can be of consequence to mankind, or any creature, but happiness." Hence there can be no greater obligation or higher duty than that of producing human happiness. By the light of scientific knowledge we can perceive that this object is the one towards which sets the current of human evolution. From the beginning of the human race the capacity for, and possibility of, attaining happiness has been evolving by the working of that inconceivable Power to which science leads us to attribute all the facts of the universe. Where can we find a higher object—a more sacred duty —to set before us than the constant aim to keep in step with this evolutionary march of our race?

> "From seeming evil still educing good,
> And better thence again and better still
> In infinite progression——"

The uniformity of order, indeed, in the working of the universe we cannot in the slightest degree destroy. We

may by moving across or against the "infinite progression" hurt others, and be trodden under foot ourselves. In doing this, however, we shall break no law, anger no manlike God; we shall simply be destroyed. "*Whatsoever* a man soweth, that shall he also reap." If we sow evil, we reap pain; if good, we reap pleasure. If, then, this scientific religion were adopted, it would surely be capable of satisfying the sentimental or emotional part of our nature, enabling us to *feel*, as it would, that we are, in the highest and truest sense, working with God. On the practical side, again, this religion might be described as life-work of which the single end is to promote the well-being and the happiness of man. Such religion, science, and science alone, can enable us to practise. Every fresh revelation she makes to us of natural law gives us new fitness, puts into our hands new means for attaining the desired end. The enlarging of the intellect, again, constantly resulting from exercise, is always enabling us to use the better the increasing means. On the moral side we have seen that science teaches us that we are passing from the selfish and solitary state to the sympathetic and social. To bring our moral nature, therefore, into harmony with the course indicated by the stream and tendency of things, we must feel it to be our duty to weaken the faculties whose functions, however useful they were to man in the solitary stage of existence, are